HCD-MD5

SERVICE MANUAL

AEP Model
UK Model
E Model
Tourist Model

HCD-MD5 is the amplifier, CD, MD and tuner section in DHC-MD5.

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

CD Section	Model Name Using Similar Mechanism	HCD-W55
	CD Mechanism Type	CDM38A-5BD19
	Base Unit Name	BU-5BD19
	Optical Pick-up Name	KSS-213B/K-N
MD Section	Model Name Using Similar Mechanism	NEW
	MD Mechanism Type	MDM-2FR
	Base Unit Name	MBU-2F
	Optical Pick-up Name	KMS-210A/J-N

SPECIFICATIONS

Amplifier section

DIN power output 40 W + 40 W (6 ohms, at 1 kHz, DIN)
Continuous RMS power output 50 + 50 watts (6 ohms at 1 kHz, 10% THD)
Peak music power output 700 watts
Music power output 160 watts
Inputs VIDEO/GAME IN (phono jacks) (switchable)
VIDEO IN: voltage 250 mV, impedance 47 kilohms
GAME IN: voltage 450 mV, impedance 47 kilohms
TAPE IN (phono jacks): voltage 250mV, impedance 47 kilohms
Outputs TAPE OUT (phono jacks): voltage 250 mV impedance 1 kilohms
PHONES (stereo phone jack): accepts headphones of 8 ohms or more.
SPEAKER: accepts impedance of 6 to 16 ohms.

CD player section

System Compact disc and digital audio system
Laser Semiconductor laser (λ=780 nm) Emission duration: continuous
Laser output Max. 44.6 µW* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.
Frequency response 2 Hz – 20 kHz (±0.5 dB)
CD OPTICAL DIGITAL OUT (Square optical connector jack, rear panel)

MD deck section

System MiniDisc digital audio system
Laser Semiconductor laser (λ=780 nm) Emission duration: continuous
Laser output Max. 44.6 µW* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture.
Recording time 74 minutes max. (using MDW-74)
Sampling frequency 44.1 kHz
Frequency response 5 Hz to 20 kHz

– Continued on next page –

MICROFILM

MINI Hi-Fi COMPONENT SYSTEM

SONY®

Tuner section
FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range	
Tourist model:	76.0 – 108.0 MHz (50 kHz step)
Other models:	87.5 – 108.0 MHz (50 kHz step)
Aerial	FM lead aerial
Aerial terminals	75 ohm unbalanced
Intermediate frequency	10.7 MHz

AM tuner section

Tuning range	
German model:	
AM:	522 – 1,611 kHz (with the interval set at 9 kHz)
AEP, UK models:	
MW:	522 – 1,611 kHz (with the interval set at 9 kHz)
LW:	144 – 288 kHz (with the interval set at 3 kHz)
Tourist model:	
AM:	531 – 1,602 kHz (with the interval set at 9 kHz) 530 –1,710 kHz (with the interval set at 10 kHz)
Malaysia, Singapore, Saudi Arabia, Hong Kong models:	
MW:	531 – 1,602 kHz (with the interval set at 9 kHz) 530 – 1,710 kHz (with the interval set at 10 kHz)
SW:	5.95 – 17.90 MHz
Aerial	AM loop aerial External aerial terminals
Intermediate frequency	450 kHz

General

Power requirements	220 – 230 V AC, 50/60 Hz (AEP, German model) 110 – 120 V or 220 – 240 V AC, 50/60 Hz Adjustable with the voltage selector (Other model)
Power consumption	85 watts (Tourist model) 130 watts (Other models)
Dimensions	
Amplifier/Tuner/MD/CD section:	Approx. 280 × 240 × 360 mm ($11\ ^1/_8 \times 9\ ^1/_2 \times 14\ ^1/_4$ in) (w/h/d) incl. projecting parts and controls (U.K., Hong Kong model) Approx. 280 × 240 × 350 mm ($11\ ^1/_8 \times 9\ ^1/_2 \times 13\ ^7/_8$ in) (w/h/d) incl. projecting parts and controls (Other models)
Mass	
Amplifier/Tuner/MD/CD section:	Approx. 9.4 kg (20 lb 12 oz)
Supplied accessories:	AM loop aerial (1) Remote RM-S5MD (1) Sony SUM-3 (NS) batteries (2) FM lead aerial (1) Speaker cords (2)

Design and specifications are subject to change without notice.

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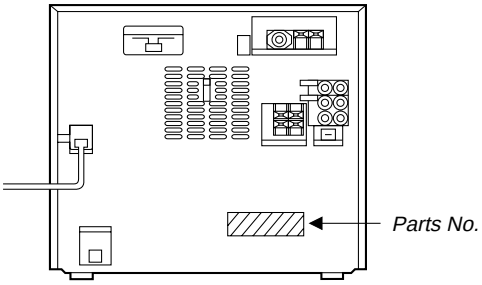
SECTION 1
SERVICING NOTES

MODEL IDENTIFICATION
— BACK PANEL —



MODEL	PARTS No
AEP model	4-984-208-1☐
UK model	4-984-208-2☐
Saudi Arabia, Singapore, Malaysia model	4-984-208-3☐
German model	4-984-208-4☐
Hong Kong model	4-984-208-5☐
Tourist model	4-984-208-7☐

Note:
Be sure to connect all wires (including FFC) in the MD section before applying power or ICs may be damaged.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

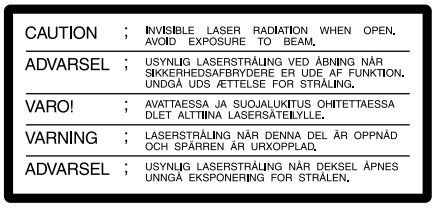
- Keep the temperature of soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser component in this product is capable of emitting radiation exceding the limit for Class 1.

This appliance is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.


CAUTION ; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL ; USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO! ; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING ; LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL ; USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

This caution label is located inside the unit.

COLD START METHOD

While pressing the POWER key, insert the AC plug cord into the AC outlet. Cold start will be set.

Note :

As cold start will erase all the preset contents etc., do not set it in normal operations.

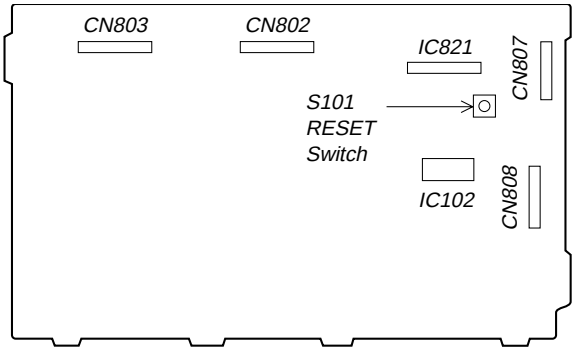
FORCED RESET SWITCH

The switch on the power board (S101) is the forced reset switch for IC201.

Press it for about one second after turning on the power after disassembling and assembling the unit again.

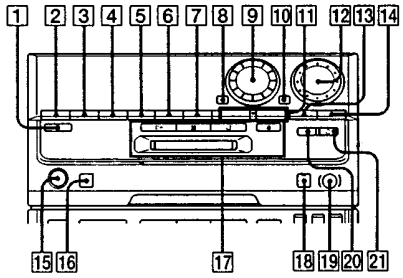
• Parts Location

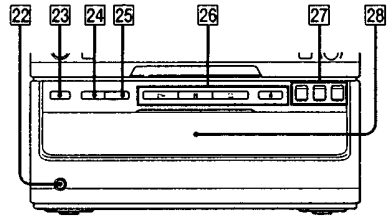
[POWER BOARD] — Component side —



Index to Parts and Controls

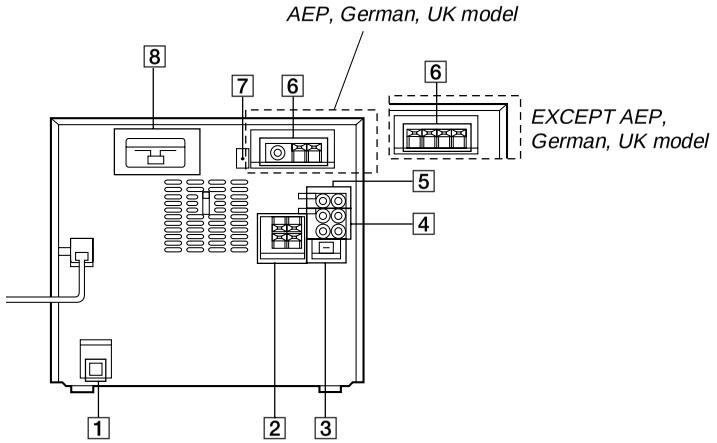
Front Panel





1 TUNER/BAND button
2 PLAY MODE/TUNING MODE button
3 REPEAT/STEREO/MONO button
4 1/ALL DISCS button
5 DISPLAY button
6 TIMER SET button
7 TIMER SELECT button
8 EDIT/NO button
9 MULTI JOG control
10 ENTER/YES button
11 ⊲⊲/⊳⊳ (fast backward/fast forward)
←/→ CUSOR button
12 VOLUME control
13 CHARACTER button
14 PRESET EQ button
15 SYSTEM POWER switch
16 FUNCTION button
17 MD control button
⊳ (MD play) button
⏸ (MD pause) button
□ (MD stop) button
⏏ (MD EJECT) button
MD slot
18 DBFB button
19 GROOVE button
20 CD SYNC button
21 ● REC button
22 PHONES jack
23 LOOP button
24 EX-CHANGE button
25 DISC SKIP button
26 CD control button
⊳ (CD play) button
⏸ (CD pause) button
□ (CD stop) button
⏏ (CD EJECT) button
27 DISC 1-3 buttons
28 DISC TRAY

Rear Panel

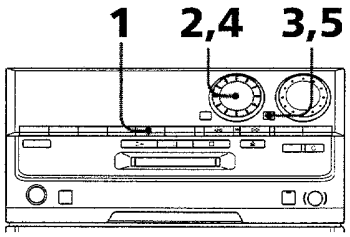


1 CD OPTICAL DIGITAL OUT jack
2 SPEAKER connectors
3 AU BUS connector
4 TAPE input/output jack
5 VIDEO GAME/VCR connectors
6 Aerial terminals
7 SIGNAL Ground terminal
8 VOLTAGE SELECTOR
(Malaysia, singapore, Saudi Arabia, Hong Kong, Tourist model)

This section is extracted from instruction manual.

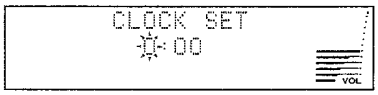
Step 2: Setting the time

You must set the time beforehand to use the timer function.



1 Press TIMER SET.

2 Turn MULTI JOG and set the hour.
The clock is on a 24-hour system.



3 Press ENTER/YES.

4 Turn MULTI JOG and set the minute.

5 Press ENTER/YES.
The clock starts working.

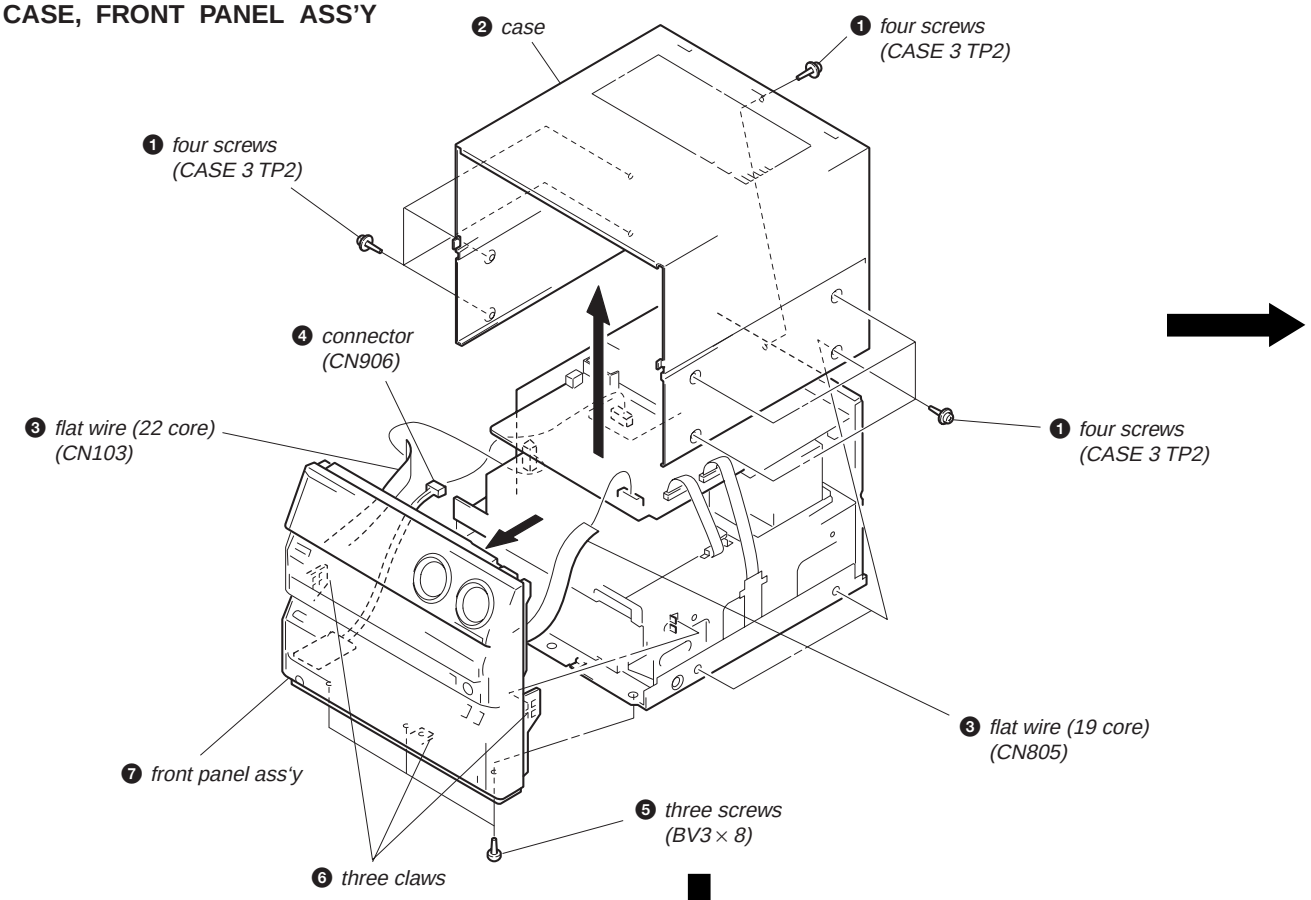
To change the preset time

1 Press TIMER SET.
2 Turn MULTI JOG until "CLOCK SET?" appears, then press ENTER/YES.
3 Repeat steps 2 to 5.

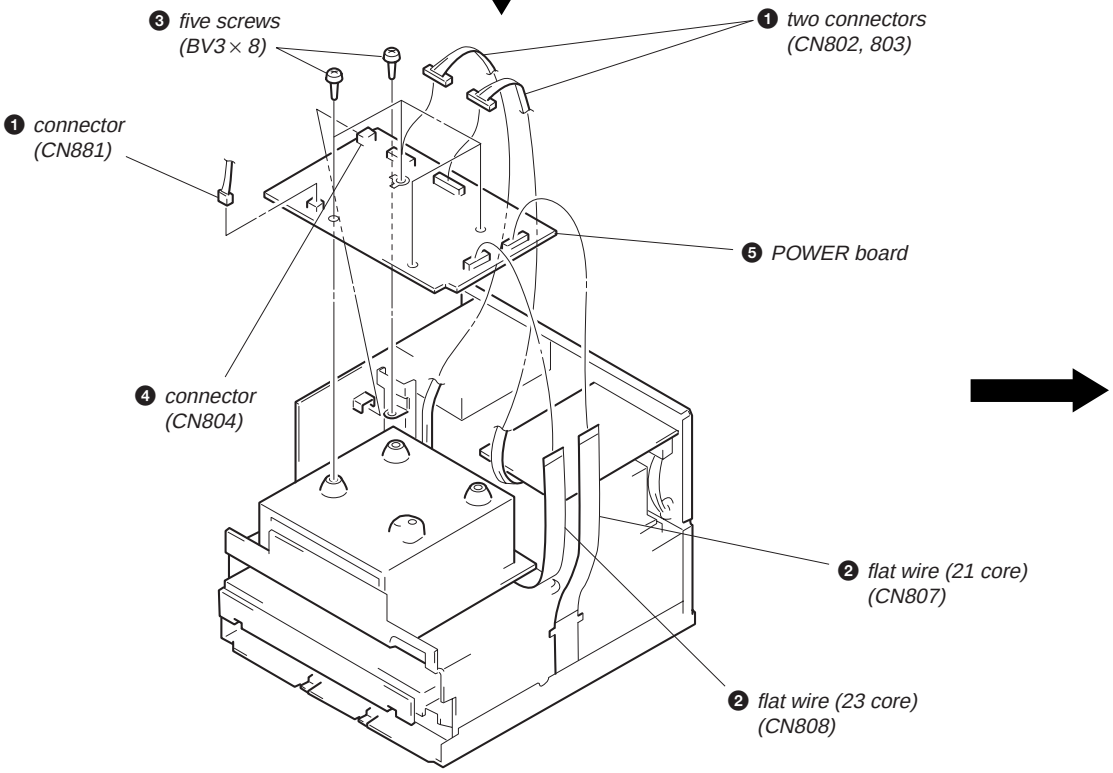
SECTION 3
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

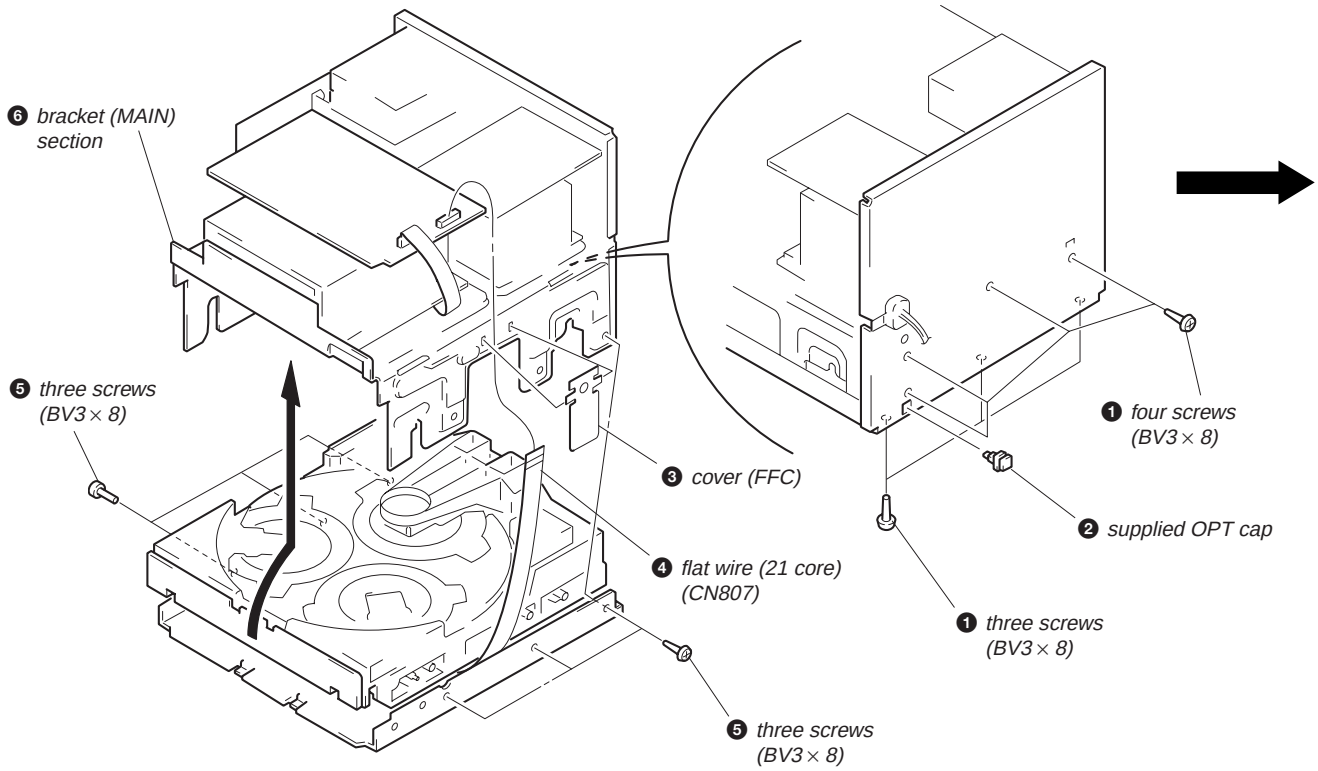
CASE, FRONT PANEL ASS'Y


❷ case
❶ four screws (CASE 3 TP2)
❶ four screws (CASE 3 TP2)
❹ connector (CN906)
❸ flat wire (22 core) (CN103)
❶ four screws (CASE 3 TP2)
❸ flat wire (19 core) (CN805)
❼ front panel ass'y
❺ three screws (BV3 × 8)
❻ three claws

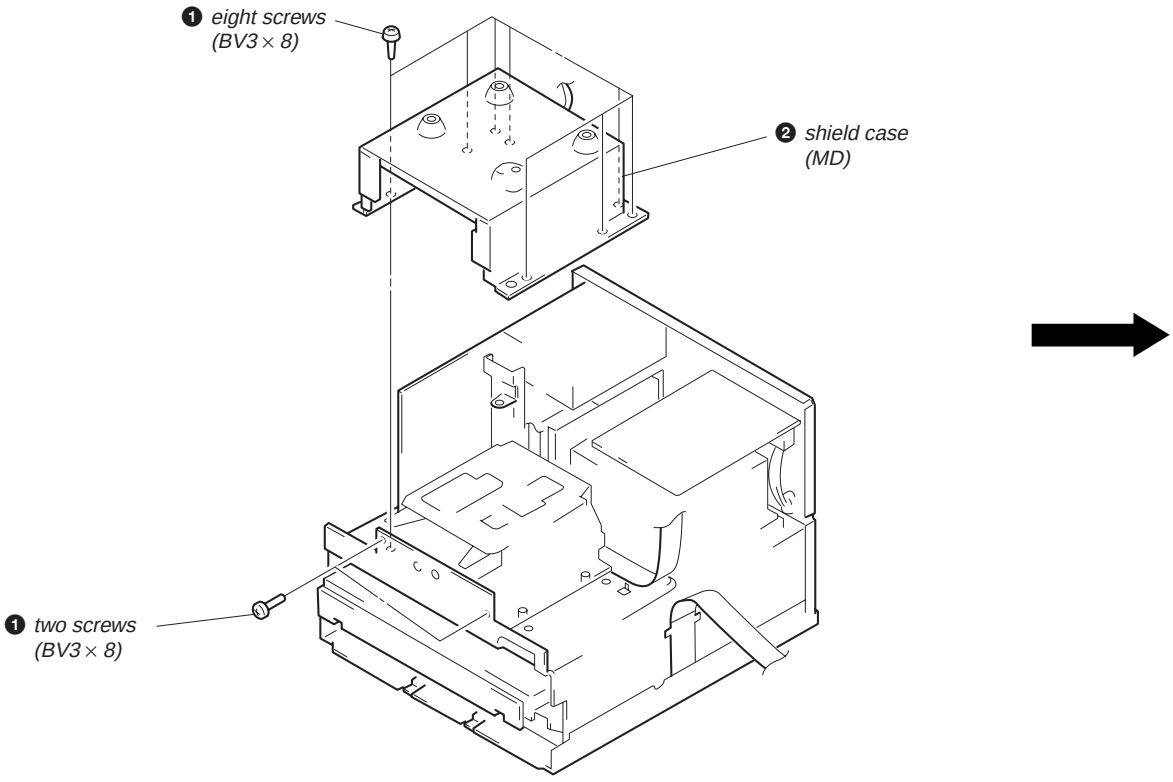
POWER BOARD


❸ five screws (BV3 × 8)
❶ two connectors (CN802, 803)
❶ connector (CN881)
❺ POWER board
❹ connector (CN804)
❷ flat wire (21 core) (CN807)
❷ flat wire (23 core) (CN808)

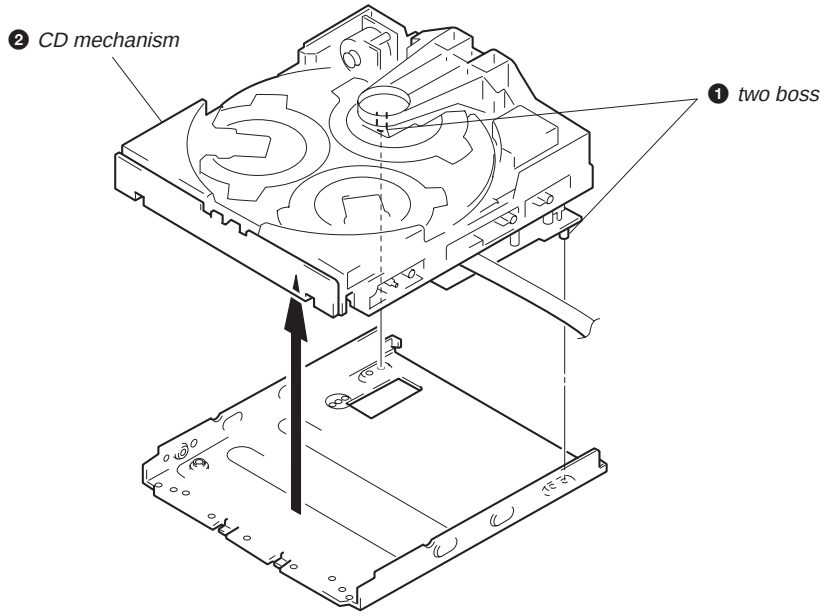
BRACKET (MAIN) SECTION


❻ bracket (MAIN) section
❺ three screws (BV3 × 8)
❸ cover (FFC)
❹ flat wire (21 core) (CN807)
❺ three screws (BV3 × 8)
❶ four screws (BV3 × 8)
❷ supplied OPT cap
❶ three screws (BV3 × 8)

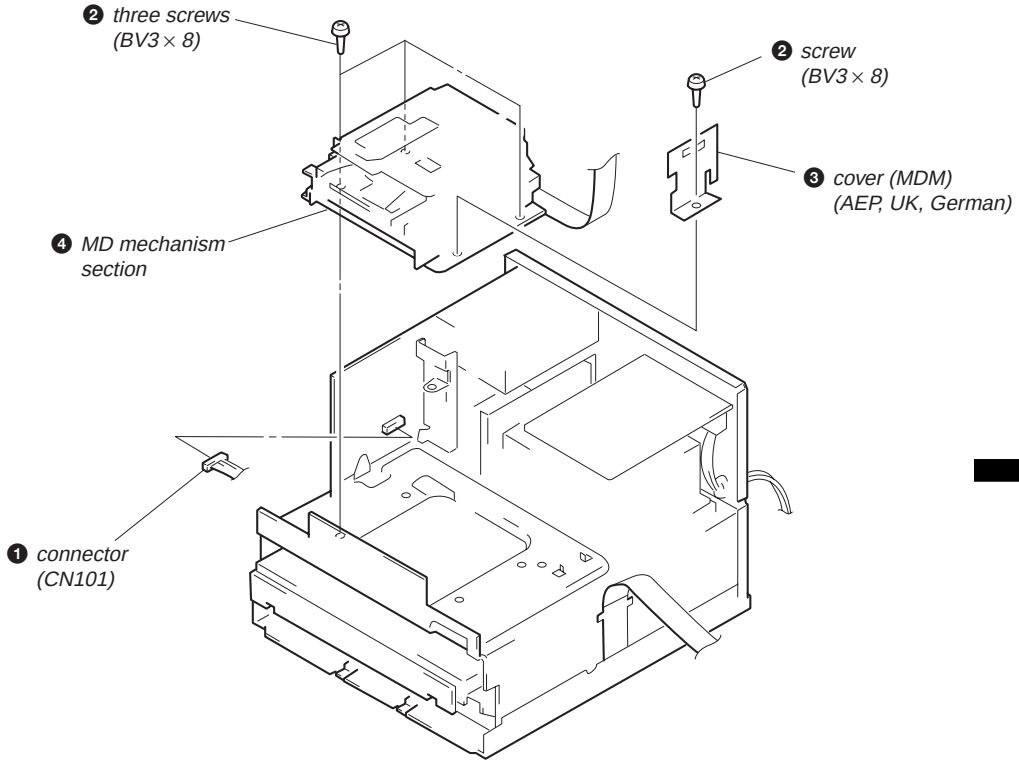
SHIELD CASE (MD)



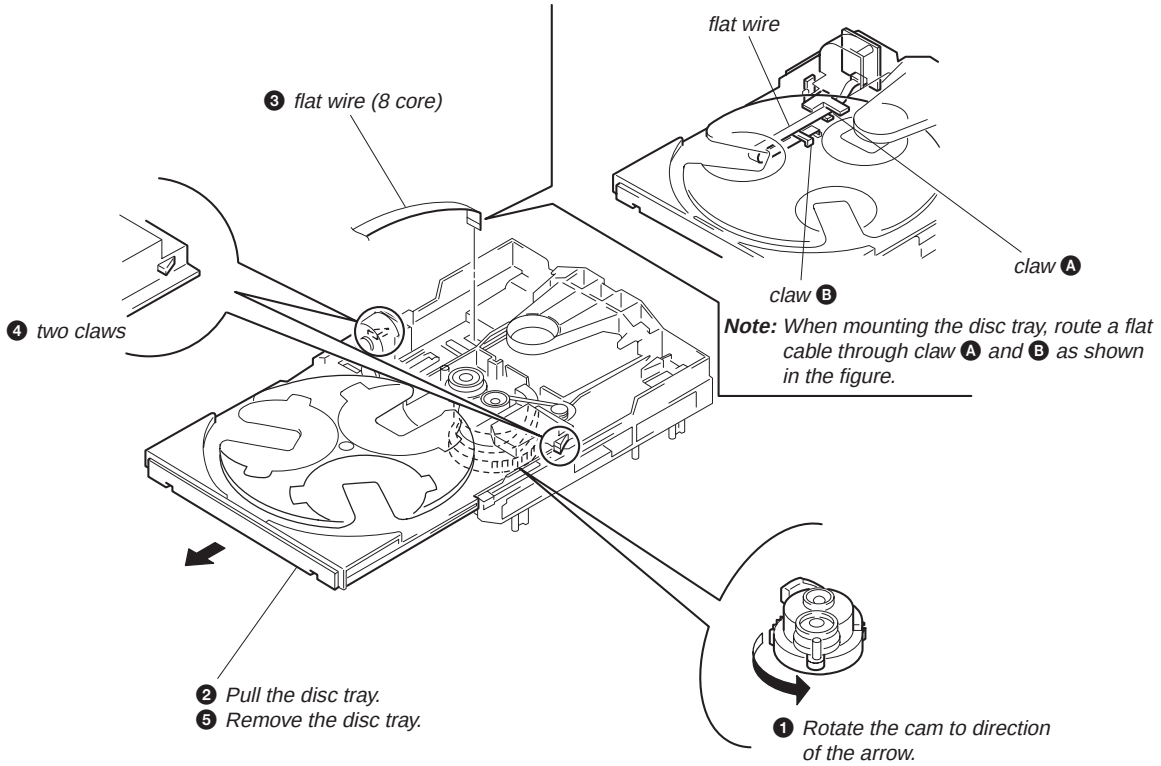
CD MECHANISM



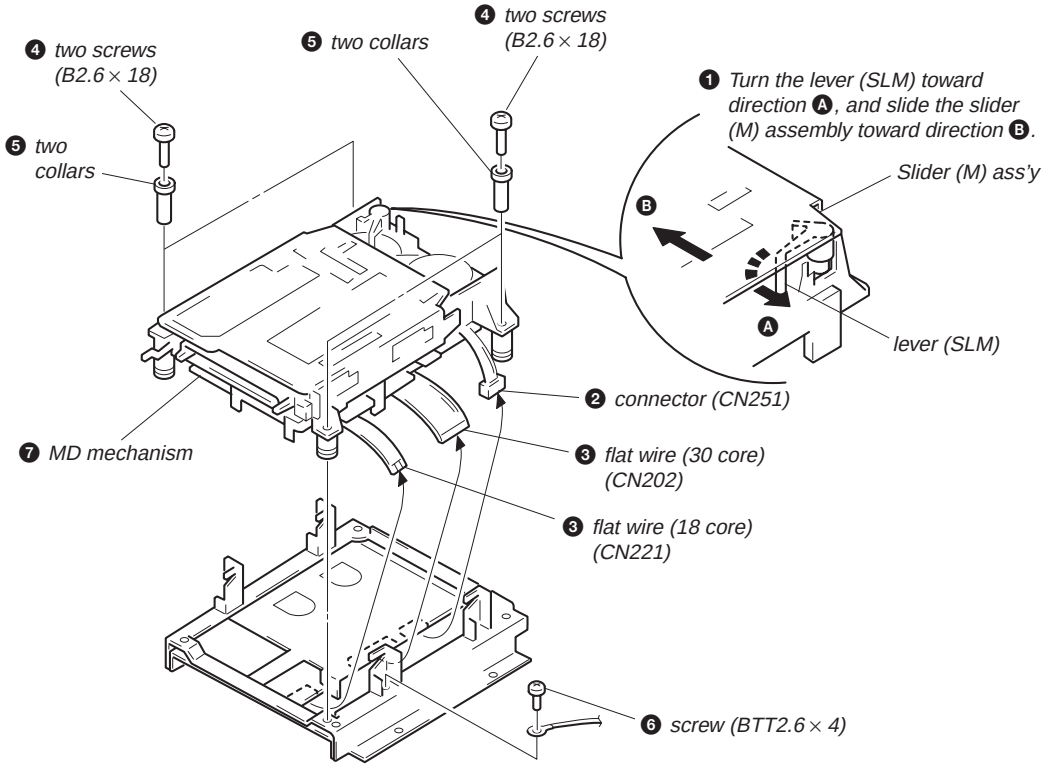
MD MECHANISM SECTION



DISC TRAY

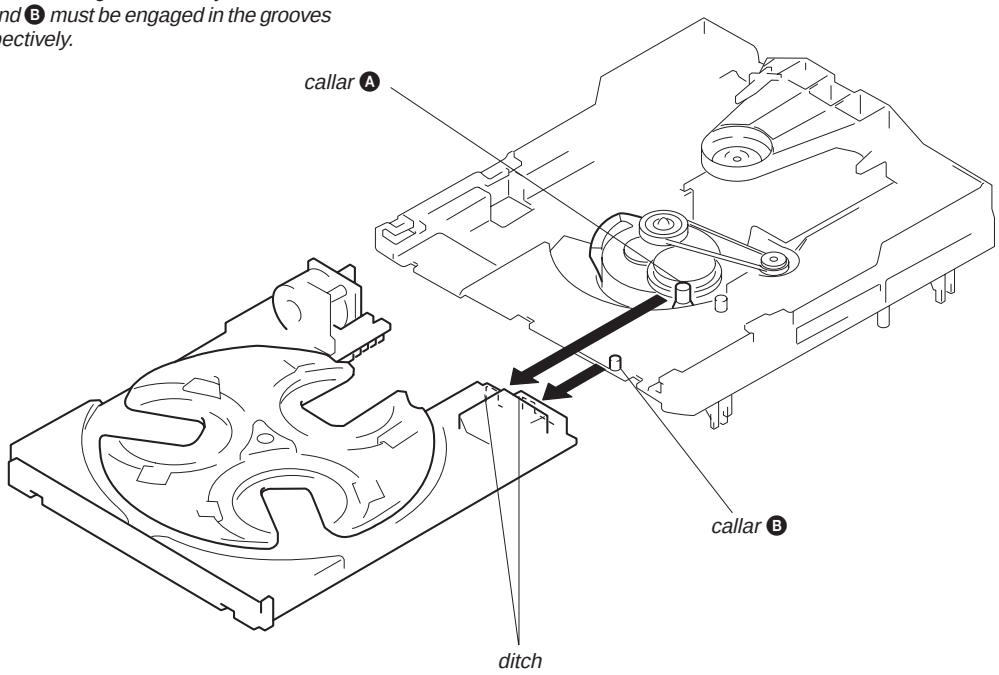

flat wire
❸ flat wire (8 core)
claw Ⓐ
claw Ⓑ
❹ two claws
Note: When mounting the disc tray, route a flat cable through claw Ⓐ and Ⓑ as shown in the figure.
❷ Pull the disc tray.
❺ Remove the disc tray.
❶ Rotate the cam to direction of the arrow.

MD MECHANISM

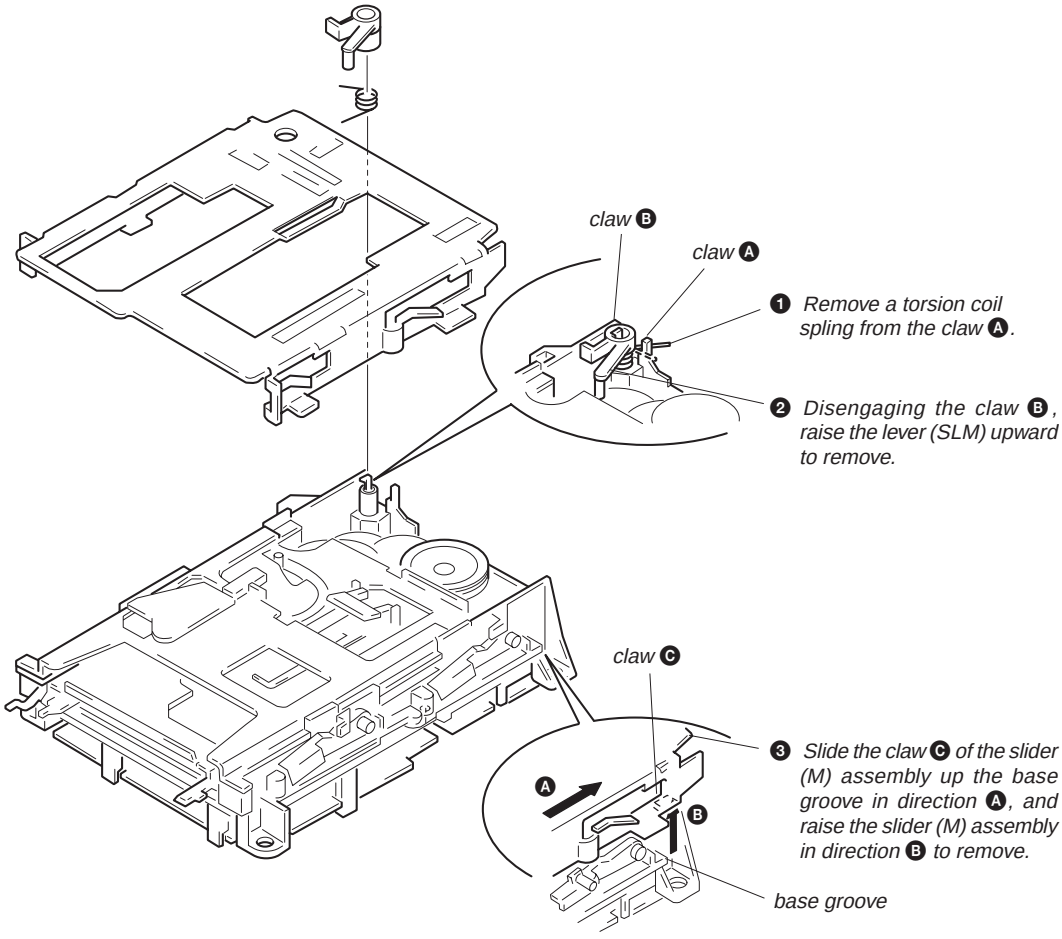

❹ two screws (B2.6 × 18)
❺ two collars
❹ two screws (B2.6 × 18)
❶ Turn the lever (SLM) toward direction Ⓐ, and slide the slider (M) assembly toward direction Ⓑ.
❺ two collars
Slider (M) ass'y
Ⓑ
Ⓐ
lever (SLM)
❷ connector (CN251)
❼ MD mechanism
❸ flat wire (30 core) (CN202)
❸ flat wire (18 core) (CN221)
❻ screw (BTT2.6 × 4)

INSTALLATION DISC TRAY

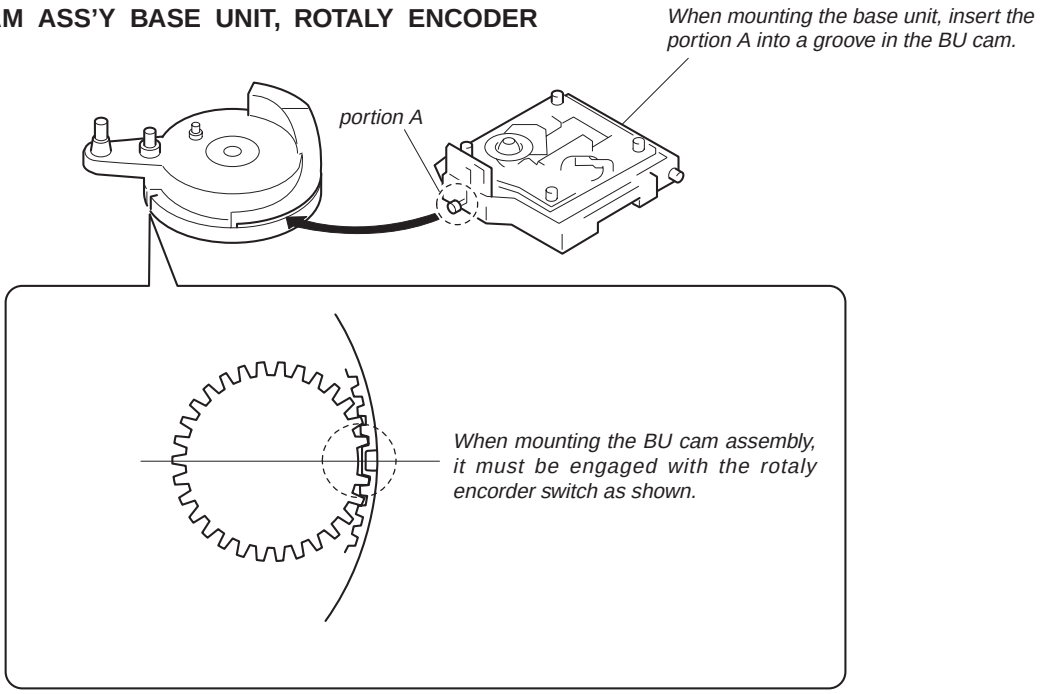
Note: *When mounting the disc tray, the collars* Ⓐ *and* Ⓑ *must be engaged in the grooves respectively.*



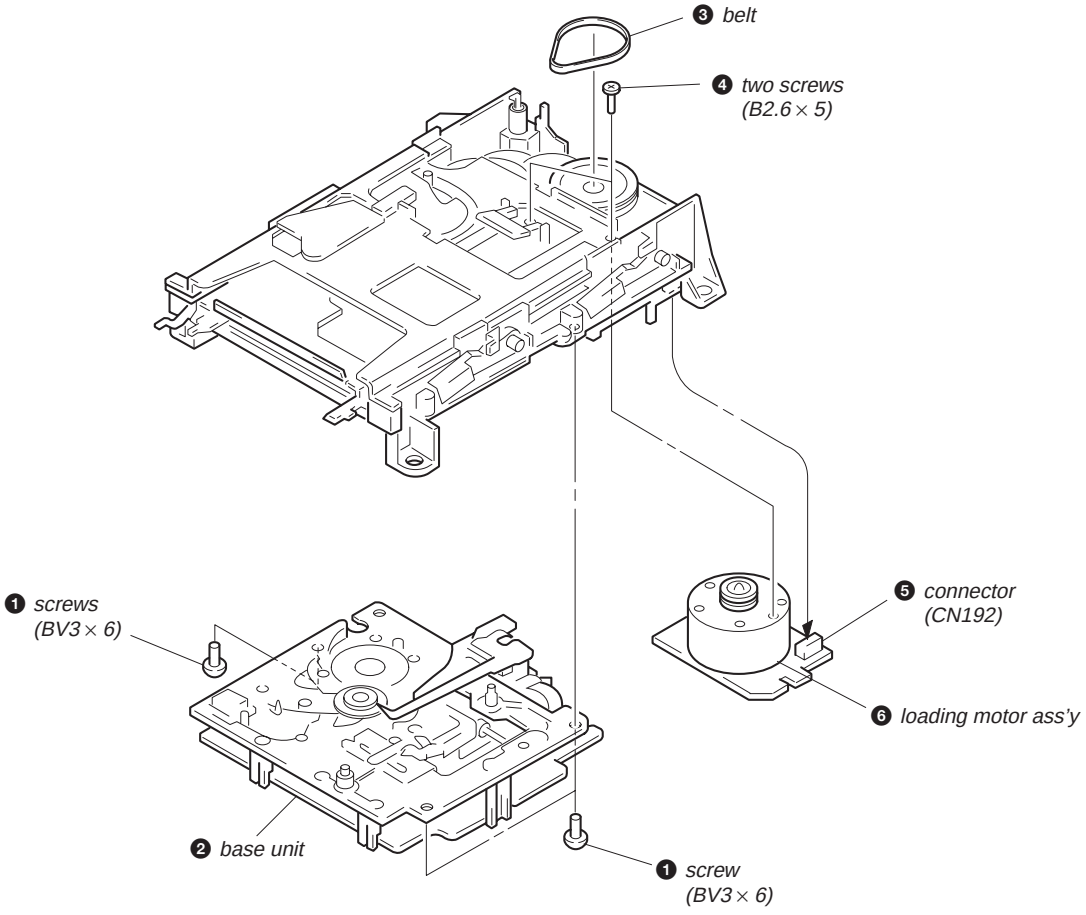
SLIDER (M) ASS'Y


claw Ⓑ
claw Ⓐ
❶ Remove a torsion coil spling from the claw Ⓐ.
❷ Disengaging the claw Ⓑ, raise the lever (SLM) upward to remove.
claw Ⓒ
❸ Slide the claw Ⓒ of the slider (M) assembly up the base groove in direction Ⓐ, and raise the slider (M) assembly in direction Ⓑ to remove.
base groove

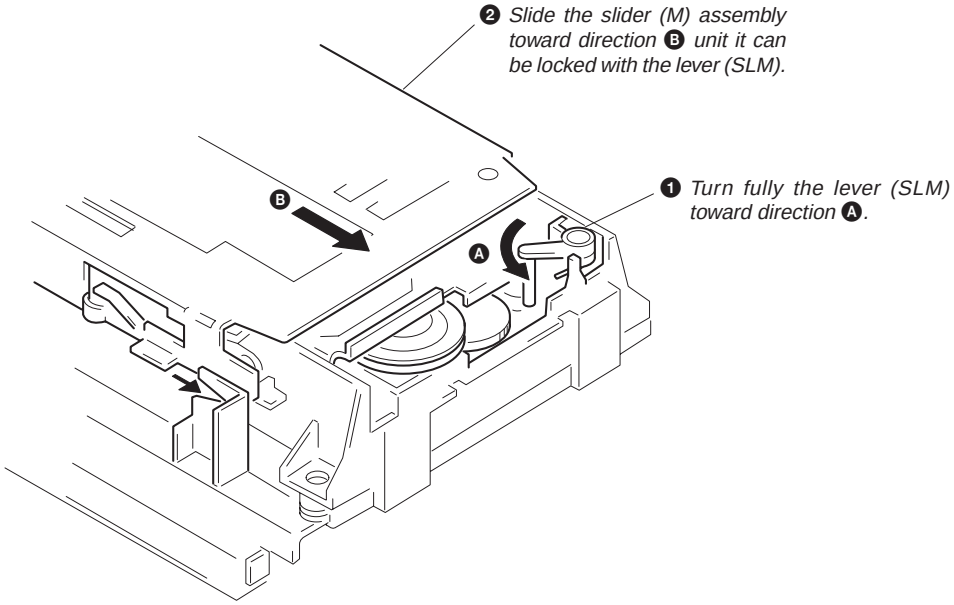
INSTALLATION BU CAM ASS'Y BASE UNIT, ROTALY ENCODER


When mounting the base unit, insert the portion A into a groove in the BU cam.
portion A
When mounting the BU cam assembly, it must be engaged with the rotaly encorder switch as shown.

BASE UNIT, LOADING MOTOR ASS'Y



INSTALLATION SLIDER (M) ASS'Y


❷ Slide the slider (M) assembly toward direction Ⓑ unit it can be locked with the lever (SLM).
❶ Turn fully the lever (SLM) toward direction Ⓐ.
B
A

SECTION 4
TEST MODE

Note:
Be sure to connect all wires (including FFC) in the MD section before applying power or ICs may be damaged.

4-1. OUTLINE

This unit is provided with the following test modes.

1. Check mode for amplifier section
2. Aging mode for CD and MD sections
3. Fluorescent indicator tube and check mode for keys
4. Tracking balance display mode for CD section
5. Check mode for clock function
6. Test mode for MD section

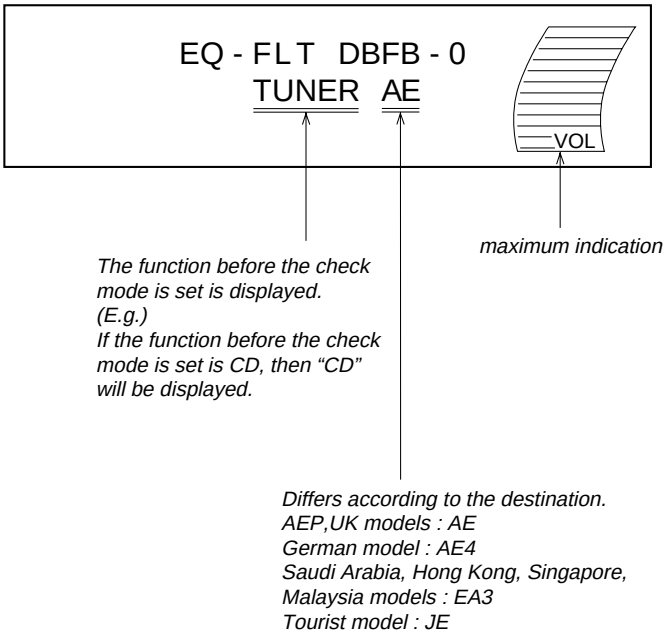
4-2. CHECK MODE FOR AMPLIFIER SECTION

4-2-1. Setting the Check Mode

- Turn ON the power of the unit, and set the check mode by pressing the following keys together.

  PLAY MODE + □ (CD) + GROOVE

  When set, the following will be displayed.


EQ - FLT DBFB - 0
TUNER AE
VOL
maximum indication
The function before the check mode is set is displayed.
(E.g.)
If the function before the check mode is set is CD, then "CD" will be displayed.
Differs according to the destination.
AEP,UK models : AE
German model : AE4
Saudi Arabia, Hong Kong, Singapore, Malaysia models : EA3
Tourist model : JE

4-2-2. Releasing the Check Mode

1. Press the POWER key.
2. The unit sets into the mode for normal operations.

4-2-3. Operating the Check Mode

* When the following keys are pressed in the check mode state (Refer to Table 4-1.), the switching state of the DBFB, VOLUME, EQUALIZER functions and VIDEO/GAME functions can be checked.

Table 4-1

Key	Function	Display
DBFB	ON/OFF switching of the DBFB function	DBFB-1/ DBFB-0
DISC 1	Equalizer minimum	EQ-MIN
DISC 2	Equalizer flat	EQ-FLT
DISC 3	Equalizer maximum	EQ-MAX
●REC	Volume center	VOL indicator center position
VOLUME ↷	Volume maximum	VOL indicator maximum position
VOLUME ↶	Volume minimum	VOL indicator minimum position
FUNCTION	VIDEO/GAME function on switching	VIDEO/GAME

4-3. AGING MODE FOR CD AND MD SECTIONS

4-3-1. Setting the Aging Mode

1. Load the mini disc (recordable disc) into the MD slot and three discs onto the CD tray.
2. Turn OFF the power of the unit, and set the aging mode by pressing the following keys together.

   DISPLAY + ▯▯(MD) + GROOVE

4-3-2. Releasing the Aging Mode

1. Press the POWER key.
2. The unit sets into the mode for normal operations.

4-3-3. Operating the Aging Mode

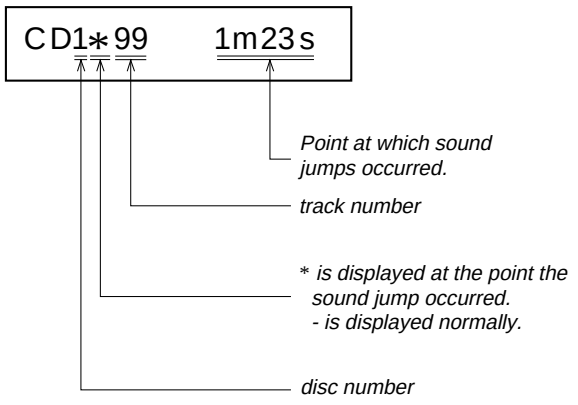
1. When this mode is set, synchro dubbing onto the mini disc is started, and each time a cycle ends, the cycle number is displayed. When the mini disc has recorded 40 songs on its 30 second track, it erases all the songs.
2. During the aging mode, the VOL display blinks.

3. If errors occur during or after aging, the error messages in the following table will be displayed.

Table 4-2.

	Error Message		Contents
MD Section	MD A-Erase	NG	Cannot all-erase MD.
	MD R-Pause	NG	Cannot record-pause MD.
	MD D-Input	NG	Cannot lock MD digital in.
	MD Play	NG	Cannot playback last MD song. (The played back track is not the last track (access error)).
	MD TOC	NG	MD TOC are abnormal. (The total track is abnormal.)
	MD No Disc	NG	Cannot read MD TOC. (Disc error)
CD Section	CD Focus	NG	CD focus NG
	CD GFS	NG	CD GFS (Garde frame sync) NG.
	CD TOC	NG	16 seconds after reading CD TOC.
	CD SEARCH	NG	16 seconds after CD search.
	CD SERVO	OK	Not an error message indicating servo system error. May be displayed during STOP.
	Refer to NOTE 1.		Sound jumps lasting more than 1 second during play back.

Note 1:


CD1*99 1m23s
Point at which sound jumps occurred.
track number
* is displayed at the point the sound jump occurred.
- is displayed normally.
disc number

4-4. FLUORESCENT INDICATOR TUBE AND CHECK MODE FOR KEYS

4-4-1. Setting the Check Mode

- Turn OFF the power of the unit, and set the check mode by pressing the following keys together.

  [⏏ (MD)] + [□ (MD)] + [GROOVE]

  When set, the fluorescent indicator tube and all LEDs will light up.

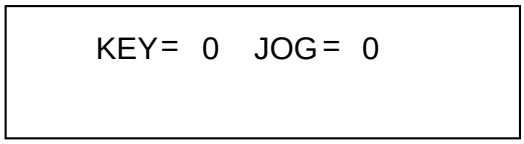
4-4-2. Releasing the Check Mode

- Press the [POWER] key during the check mode for the fluorescent indicator tube, or press any key during the check mode for each key when the display shows "KEY = OK". The unit sets into the mode for normal operations.

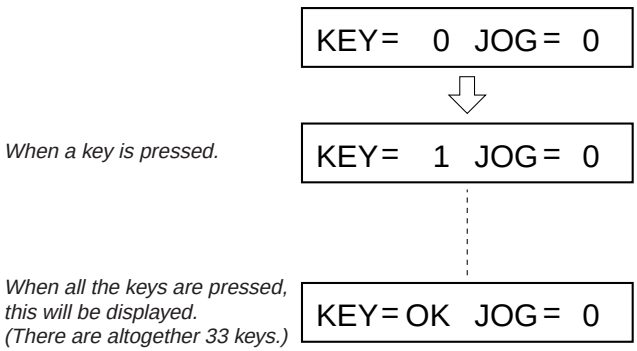
4-4-3. Operating the Check Mode

- Each time the [ENTER/YES] key is pressed in the check mode for the fluorescent indicator tube, the display changes in three ways. The LED lighting pattern can be changed by rotating the MULTI JOG dial.

- Check Mode of Keys
  Press the [EDIT/NO] key to set this mode.
  When set, the following will be displayed.

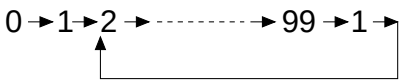


The display counts up each time a key is pressed.
(It will not count up when a key already pressed once is pressed again.) The order of pressing the key and the count up are not related.)


KEY= 0 JOG= 0
When a key is pressed.
KEY= 1 JOG= 0
When all the keys are pressed, this will be displayed. (There are altogether 33 keys.) When a key is pressed during this display, this check mode will end.)
KEY= OK JOG= 0

When the MUTLI JOG dial and VOLUME control dial are rotated, the JOG count display will count up or down accordingly.
(E.g.)

JOG = ☐ ← *This value will be as follows (JOG count display).*
(When the JOG dial is rotated right.)

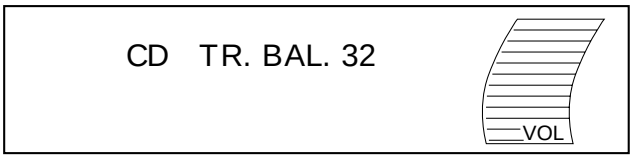


Note: To end this mode, KEY=OK must be displayed.

4-5. TRACKING BALANCE DISPLAY MODE FOR CD SECTION

4-5-1. Setting and Operating the Tracking Balance Indication Mode

1. Turn ON the power of the unit, and press the [FUNCTION] key to set the CD mode.
   (This mode cannot be set if the function is not CD.)
2. Set this mode by pressing the ☐(CD) + DISPLAY keys together.
3. When set, the following will be displayed.



Note: In this mode, the display is lit only for a short time. If necessary, press the ☐CD + DISPLAY keys together again.
(This mode is automatically released.)

4-6. CHECK MODE FOR CLOCK FUNCTION

4-6-1. Setting and Operating the Check Mode

1. Turn OFF the power of the unit.
2. Set this mode by pressing the ☐ (MD) + DISPLAY keys together.
3. When set, the clock display will be highlighted.

Note: In this mode, the clock display is highlighted only for a short time. If necessary, press the ☐ (MD) + DISPLAY keys together again.
(This mode is automatically released.)

4-7. TEST MODE FOR MD SECTION

4-7-1. Setting the Test Mode

- Turn OFF the power of the unit, and set the test mode by pressing the following keys together.

  FUNCTION + PRESET EQ + GROOVE

  When set, the following will be displayed.

```
MBU Test Mode
TEMP   ADJUST
```

4-7-2. Replase the Test Mode

1. Press the REPEAT key.
2. The set thus becomes available for normal operation.

4-7-3. Basic Operation of the Test Mode

- All operations are performed using the MULTI JOG dial, ENTER/YES key, and EDIT/NO key.
- The functions of these keys are as follows.

Table 4-3.

Key	Contents
MULTI JOG dial	Changes parameters and models.
ENTER/YES key	Proceeds onto the next step. Finalizes input.
EDIT/NO Key	Returns to previous step. Stops operation.

4-7-4. Selecting the Test Mode

Eight test modes are selectied by turning the MULTI JOG dial.

Table 4-4.

Display	Contents
TEMP ADJUST	Temperature compensation offset adjustment
LDPWR ADJUST	Laser power adjustment
EFBAL ADJUST	Traverse (E-F balance) adjustment
FBIAS ADJUST	Focus bias adjustment
FBIAS CHECK	Focus bias check
CPLAY MODE	Continuous playback mode
CREC MODE	Continuous reading mode
EEP MODE	Non-volatile memory mode (*1)

- For detailed description of each adjustment mode, refer to section 5. Electrical Adjustments.
- If a different adjustment mode has been selected by mistake, press the EDIT/NO key to exit from it.

*1: The EEP MODE is not used in servicing. This mode reads and writes the contents of the non-volatile memory. If set accidentally, press the EDIT/NO key immediately to exit it.

4-7-5. Operating the Continuous Playback Mode

1. Entering the continuous playback mode
   1) Set the disk in the unit (either MO or CD).
   2) Turning the MULTI JOG dial and display “CPLAY MODE”.
   3) Press the ENTER/YES key to change the display “CPLAY IN” .
   4) When access cpmpletes, the display changes to “C1 = □□□□ AD = □□ ”.

   Note: The “ □ ” displayed are arbitrary numbers.

2. Changing the parts to be played-back
   1) Press the ENTER/YES key during continuous playback to change the display to “CPLAY MID”, “CPLAY OUT”. When pressed another time, the parts to be played-back can be changed.
   2) When access completes, the display changes to “C1 = □□□□ AD = □□ ”.

   Note: The “ □ ” display are arbitrary numbers.

3. Ending the continuous playback mode
   1) Press the EDIT/NO key. The display will change to “CPLAY MODE”.
   2) Press the ≙(MD) key and remove the disc.

   Notes:
   1. The playback start addresses for IN, MID, and OUT are as follows.
      IN: 40h cluster
      MID: 300h cluster
      OUT: 700h cluster
   2. The EDIT/NO KEY can be used to stop playing any time.

4-7-6. Operating the Continuous Recording Mode

1. Entering the continuous recording mode
   1) Set the MO disc in the unit.
   2) Turning the MULTI JOG dial and display “CREC MODE”.
   3) Press the ENTER/YES key to change the display to “CREC IN”.
   4) When access completes, the display changes to “CREC (□□□□)” and REC lights up.

Note: The “ □ ” displayed are arbitrary humbers.

2. Changing the parts to recorded
   1) When the ENTER/YES key is pressed during continuous recording, the display changes to “CREC MID”, “CREC OUT” and REC goes off. When pressed another time, the parts to be recorded can be changed.
   2) When access completes, the display changes to “CREC (□□□□)” and REC lights up.

Note: The “ □ ” displayed are arbitrary numbers.

3. Ending the continuous recording mode
   1) Press the EDIT/NO key. The display will change to “CREC MODE” and REC goes off.
   2) Press the ≙(MD) key and remove the disc.

Notes:
1. The recording start address for IN, MID, and OUT are as follows.
   IN : 40h cluster
   MID : 300h cluster
   OUT : 700h cluster

2. The EDIT/NO key can be used to stop recording anytime.
3. During the test mode, the erasing-protection tab will not be detected. Therefore be carefull not to set the continuous recording mode when a disc not be erased is set in the unit.
4. Do not perform continuous recording for long periods of time above 5 minutes.
5. During continuous recording, be carefull not to apply vibration.

4-7-7. Function of other keys

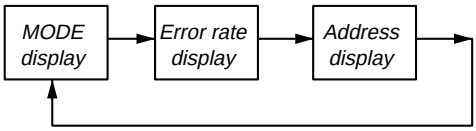
table 4-5.

Key	Centens
▷(MD)	Sets continuous playback when pressed in the STOP state. (servo all on) When pressed during continuous playback, the tracking and sled servo turns off. When pressed during tracking and sled servo turned off, the turns on.
□(MD)	Stop continuous playback and continuous recording. (servo all off)
►►	The sled moves to the outer circumference only when this is pressed.
◄◄	The sled moves to the inner circumference only when this is pressed.
● REC	Turns recording on/off when pressed during continuous playback.
TIME CONTROL	Switches between the pit and groove modes when pressed.
PLAY MODE	Switches between the CLV-S (pull-in mode) and CLV-A (playing servo) modes when pressed. (Switches the spindle servo mode.)
DISPLAY	Switches the display when pressed. Returns to previous step. Stops operatios.
⏏(MD)	Disc eject

Note: The erasing-protection tab in not detected during the test mode. Recording will start regardless of the position of the erasing-protection tab when the ● REC key is pressed.

4-7-8. Test Mode Displays

- Each time the DISPLAY key pressed, the display changes in the following order.



1. MODE display
   Display “TEMP ADJUST”, “CPLAY MODE”, etc.

2. Error rate display
   Error rates are displayed as follows.

   C1 = □□□□ AD = □□□□
   C1 = : Indicates C1 error
   AD = : Indicates ADER
3. Address display
   Address are displayed as follows.

   h = □□□□ s = □□□□ (MO pit and CD)
   h = □□□□ s = □□□□ (MO groove)

   h = : Header address
   s = : SUB Q address
   a = : ADIP address

Note: “—” is display when the address cannot be read.

4-7-9. Meanings of Other Displays

Table 4-6.

Display	Contents		
	Light	Off	Blinking
►	During continuous playback (servo all on)	Stop state (servo all off)	
❚❚	Tracking and sled servo off	Tracking and sled servo on	
REC	Recording mode on	Recording mode off	
SYNC	CLV lock state	CLV unlock state	
TRACK	Pit mode	Groove mode	
DISC	High reflection rate disc	Low reflection rate disc	
LEVEL-SYNC	Spindle servo CLV-S (pull-in mode)	Spindle servo CLV-A (playing mode)	
PROGRAM	ABCD adjustment Completed	not adjustment	
SHUFFLE	Focus auto gain and tracking auto gain successful		Focus auto gain successful, tracking auto gain failed

4-7-10. Precautions for Use of Test Mode

1. As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.
   Even if the [≙(MD)] key is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.
   Therefore, it will be ejected while rotating.
   Always press the [EDIT/NO] key first before pressing the [≙(MD)] key.
2. The erasing-protection tab is not detected in the test mode. Therefore, when modes which output the recording laser power such as continuous recording mode and traverse adjustment mode, etc. are set, the recorded contents will be erased regardless of the position of the tab. When using a disc that is not to be erased in the test mode, be careful not to enter the continuous recording mode and traverse adjustment mode.

SECTION 5
ELECTRICAL ADJUSTMENTS

Note:
Be sure to connect all wires (including FFC) in the MD section before applying power or ICs may be damaged.

MD SECTION

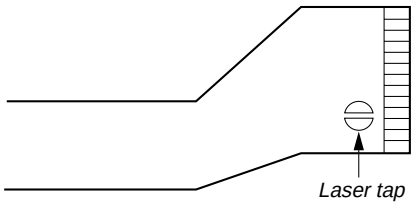
5-1. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eyesight.

5-2. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-210A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it.

Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also tale adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

5-3. PRECAUTIONS FOR ADJUSTMENTS

1) When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.

	Optical Pick-up	BD (MD) board		
		IC171	D101	IC101, IC121, IC191
1. Temperature compensation offset adjustment	×	○	○	○
2. Laser power adjustment	○	×	×	○
3. Traverse adjustment	○	○	×	○
4. Focus bias adjustment	○	○	×	○
5. Error rate check	○	○	×	○

2) Set the test mode when performing adjustments.
   After completing the adjustments, exit the test mode.
3) Perform the adjustments in the order shown.
4) Use the following tools and measuring devices.
   - Test disc (CD) TDYS-1 (Parts No. 4-963-646-01)
   - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
   - Oscilloscope
   - Digital voltmeter
   - Thermometer
5) When observing several signals on the oscilloscope, etc., make sure that VC and GND do not connect inside the oscilloscope. (VC and GND will become short-circuited)

5-4. Creating MO Continuously Recorded Disc

* This disc is used in focus bias adjustment and error rate check. The following describes how to create a MO continuous recording disc.

1. Set the test mode.
2. Insert a MO disc (blank disc) commercially available.
3. Turning the MULTI JOG dial and display “CREC MODE”.
4. Press the [ENTER/YES] key and display “CREC IN”.
5. Press the [ENTER/YES] key again to display “CREC MID”. “CREC (0300)” is displayed for a moment and recording starts.
6. Complete recording within 5 minutes.
7. Press the [EDIT/NO] key and stop recording.
8. Press the [⏏ (MD)] key and remove the MO disc.

The above has been how to create a continuous recording data for the focus bias adjustment and error rate check.

Note:

- Be careful not to apply vibration during continuous recording.

5-5. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25°C reference data.

Note:

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22°C to 28°C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Adjusting Method:

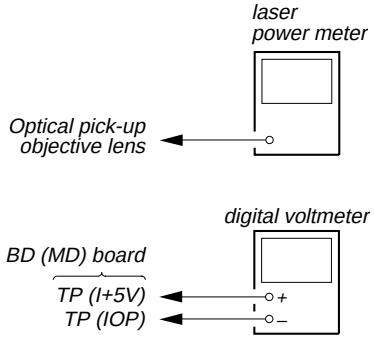
1. Turning the MULTI JOG dial and display "TEMP ADJUST".
2. Press the ENTER/YES key and select the "TEMP ADJUST" mode.
3. "TEMP = □□ " and the current temperature a data will be displayed.
4. To save the data, press the ENTER/YES key.
   When not saving the data, press the EDIT/NO key.
5. When the ENTER/YES key is pressed, "TEMP= □□ SAVE" will be displayed for some time, followed by "TEMP ADJUST".
   When the EDIT/NO key is pressed, "TEMP ADJUST" will be displayed.

Specifications:

The temperature should be within "E0-EF", "F0-FF", "00-0F", "10-1F" and "20-2F".

5-6. LASER POWER ADJUSTMENT

Connection:



Adjusting Method:

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the ◀◀ key or ▶▶ key and move the optical pick-up.)
   Connect the digital voltmeter to TP (IOP) and TP (I+5V).
2. Turning the MULTI JOG dial and display "LDPWR ADJUST". (Laser power: For adjustment)
3. Press the ENTER/YES key twice and display "LD $ 4B =3.5mW".
4. Adjust RV102 of the BD (MD) board so that the reading of the laser power meter becomes $3.4^{+0.1}_{-0}$ mW.
5. Press the ENTER/YES key and display "LD $96=7.0 mW". (Laser power: MO writing)
6. Check that the laser power meter and digital voltmeter readings satisfy the specified value.

Specification:

Laser power meter reading : 7.0 ± 0.3 mW
Digital voltmeter reading : Optical pick-up displayed value ±10%

(Optical pick-up label)

KMS210A
27X40
B0825

IOP=82.5 mA in this case
IOP (mA) = Digital voltmeter reading (mV)/1 (Ω)

7. Press the ENTER/YES key and display "LD $ 0F=0.7 mW". (Laser power: MO reading)
8. Check that the laser power meter at this time satisfied the specified value.

Specification:

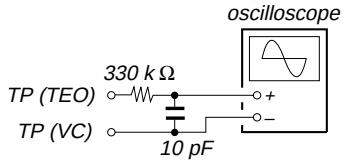
Laser power meter reading: 0.70 ± 0.1 mW

9. Press the EDIT/NO key and display "LDPWR ADJUST", and stop laser emission.
   (The EDIT/NO key is effective at all times to stop the laser emission.)

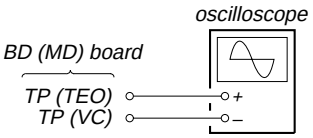
5-7. TRAVERSE (E-F BALANCE) ADJUSTMENT

Note 1) Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2) If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



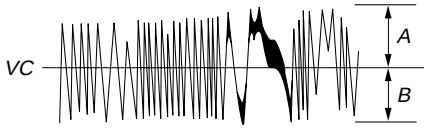
Connection:



Adjusting Method:

1. Connect an oscilloscope to TP (TEO) and TP (VC) of the BD (MD) board.
2. Load a MO disc (any available on the market).
3. Press the ◀◀ key or ▶▶ key and move the optical pick-up outside the pit.
4. Turning the MULTI JOG dial and display "EFBAL ADJUST".
5. Press the ENTER/YES key and display "EFBAL MO-W". (Laser power WRITE power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Adjust RV101 of the BD (MD) board so that the waveform of the oscilloscope becomes the specified value. (MO groove write power traverse adjustment)

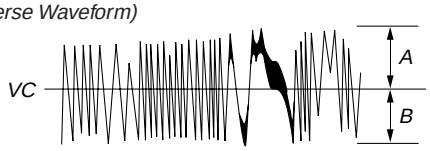
(Traverse Waveform)



specification: A=B

7. Press the ENTER/YES key and display "EFB=$ MO-R". (Laser power: MO reading)
8. Turning the MULTI JOG dial so that waveforms of the oscilloscope becomes the specified value. (When the MULTI JOG dial is turned, the of "EFB= " changes and the waveform changes.) in this adjustment, waveform varies at intervals of approx. 3%. Adjust the waveform so that the specified value is satisfied as much as possible. (MO groove read power traverse adjustment)

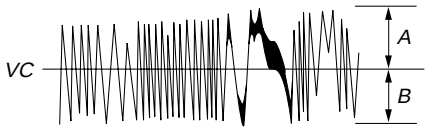
(Traverse Waveform)



specification: A=B

9. Press the ENTER/YES key, display "EFB=$ SAVE" for a moment and save the adjustment results in the non-volatile memory. Next "EFBAL MO-P" is displayed.
10. Press the ENTER/YES key and display "EFB=$ MO-P". The optical pick-up moves to the pit area automatically and servo is imposed.
11. Turning the MULTI JOG dial until the waveforms of the oscilloscope moves closer to the specified value. In this adjustment, waveform varies at intervals of approx. 3%. Adjust the waveform so that the specified value is satisfied as much as possible.

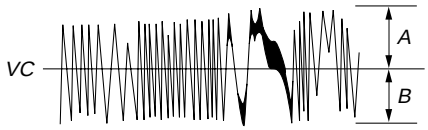
(Traverse Waveform)



specification: A=B

12. Press the ENTER/YES key, display "EFB=$ SAVE" for a moment and save the adjustment results in the non-volatile memory. Next "EFBAL CD" is displayed. The disc stops rotating automatically.
13. Press the ≙ (MD) key and remove the MO disc.
14. Load the test disc TDYS-1.
15. Press the ENTER/YES key and display "EFB=$ CD". Servo is imposed automatically.
16. Turning the MULTI JOG dial so that the waveforms of the oscilloscope moves closer to the specified value. In this adjustment, waveform varies at intervals of approx. 3%. Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse Waveform)



specification: A=B

17. Press the ENTER/YES key, display "EFB=$ SAVE" for a moment and save the adjustment results in the non-volatile memory. Next "EFBAL ADJUST" is displayed.
18. Press the ≙ (MD) key and remove the test disc TDYS-1.

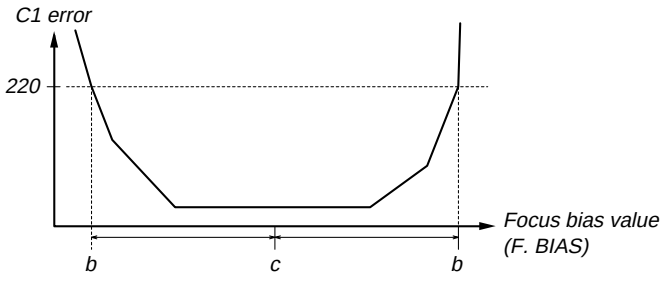
5-8. FOCUS BIAS ADJUSTMENT

Adjusting Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc".)
2. Turning the MULTI JOG dial and display "CPLAY MODE".
3. Press the ENTER/YES key twice and display "CPLAY MID".
4. Press the EDIT/NO key when "C1= AD= " is displayed.
5. Turning the MULTI JOG dial and display "FBIAS ADJUST".
6. Press the ENTER/YES key and display " / a= ". The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a=] indicate the focus bias value.
7. Turning the MULTI JOG dial in the clockwise direction and find the focus bias value at which the C1 error rate becomes 220.
8. Press the ENTER/YES key and display " / b=".
9. Turning the MULTI JOG dial in the clockwise direction and find the focus bias value at which the C1 error rate becomes 220.
10. Press the ENTER/YES key and display " / c= ".
11. Check that the C1 error rate is below 50 and ADER is 00. Then press the ENTER/YES key.
12. If the "( )" in " - - ( )" is above 20, press the ENTER/YES key.
    If below 20, press the EDIT/NO key and repeat the adjustment from step 2 again.
13. Press the EDIT/NO key and press the ⏏ (MD) key to remove the continuously recorded disc.

Note 1: The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position c is automatically calculated from points a and b.

Note 2: As the C1 error rate changes, perform the adjustment using the average vale.



5-9. ERROR RATE CHECK

5-9-1. CD Error Rate Check

Checking Method:

1. Load a test disc TDYS-1.
2. Turning the MULTI JOG dial and display "CPLAY MODE".
3. Press the ENTER/YES key twice and display "CPLAY MID".
4. "C1= AD= – –" is displayed.
5. Check that the C1 error is below 20.
6. Press the EDIT/NO key, stop playback, press the ⏏ (MD) key, and remove the test disc.

5-9-2. MO Error Rate Check

Checking Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc".)
2. Turning the MULTI JOG dial and display "CPLAY MODE".
3. Press the ENTER/YES key twice and display "CPLAY MID".
4. "C1= AD= " is displayed.
5. If the C1 error rate is below 50, check that ADER is 00.
6. Press the EDIT/NO key, stop playback, press the ⏏ (MD) key, and remove the continuously recorded disc.

5-10. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

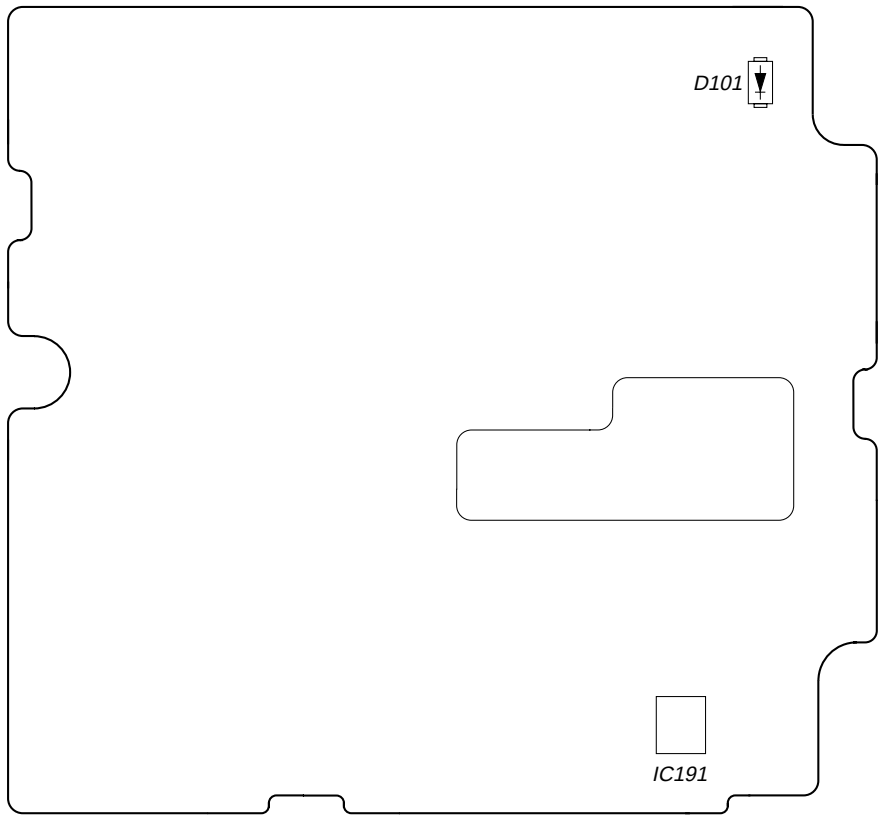
Checking Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc".)
2. Turning the MULTI JOG dial and display "CPLAY MODE".
3. Press the ENTER/YES key twice and display "CPLAY MID".
4. Press the EDIT/NO key when "C1= AD= " is displayed.
5. Turning the MULTI JOG dial and display "FBIAS CHECK".
6. Press the ENTER/YES key and display " /c= ". The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c=] indicate the focus bias value.
   Check that the C1 error is below 50 and ADER is 00.
7. Press the ENTER/YES key and display " /b=". Check that the C1 error is not below 220 and ADER is not above 00 every time.
8. Press the ENTER/YES key and display " /a=". Check that the C1 error is not below 220 and ADER is not above 00 every time.
9. Press the EDIT/NO key, next press the ⏏ (MD) key, and remove the continuously recorded disc.

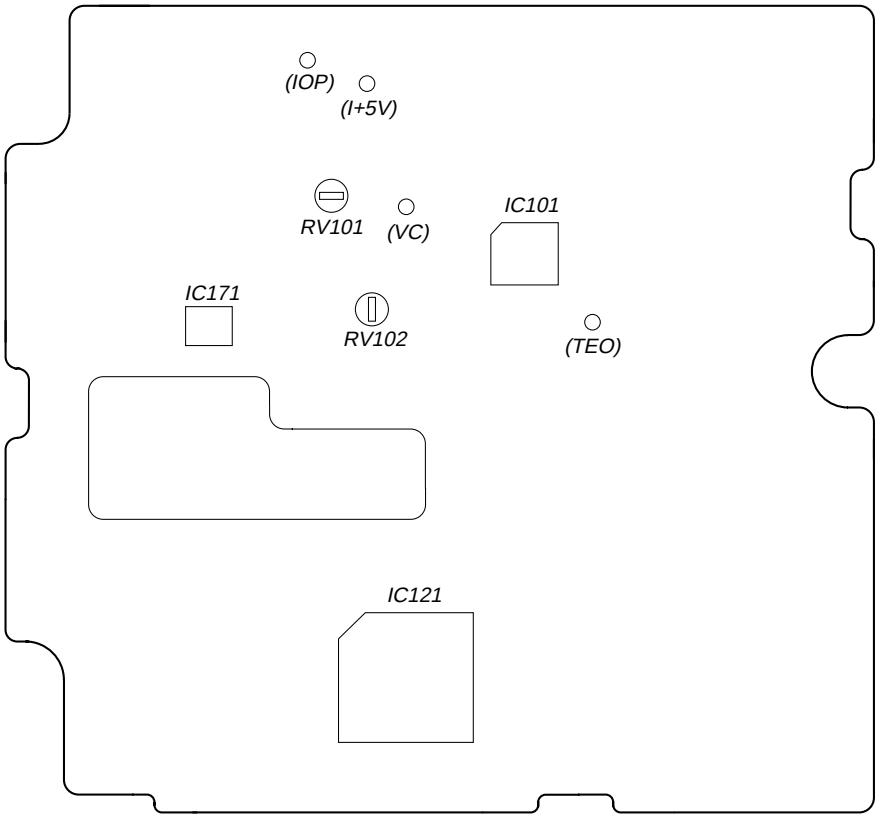
Note 1: If the C1 error and ADER are above 00 at points a or b, the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

5-11. ADJUSTING POINTS AND CONNECTING POINTS

[BD (MD) BOARD] (Side A)



[BD (MD) BOARD] (Side B)



TUNER SECTION | 0 dB=1μV

Precaution in Repairing

Note : As a front-end (FE1) is difficult to repair if faulty, replace it with new one.

- Abbreviation

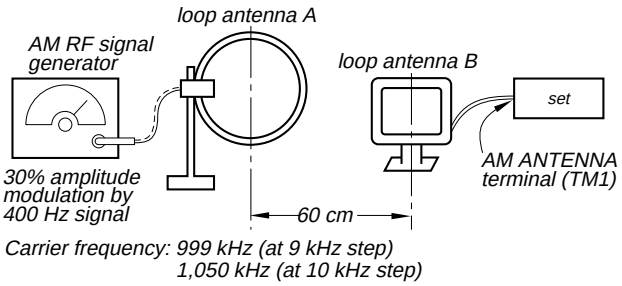
EA : Saudi Arabia
MY : Malaysia
SP : Singapore
HK : Hong Kong

AM Tuned Level Adjustment

Note : FM Tuned Level Adjustment Should be performed after this AM Tuned Level Adjustment.

Setting :

Band : AM or MW


loop antenna A
AM RF signal generator
loop antenna B
set
AM ANTENNA terminal (TM1)
30% amplitude modulation by 400 Hz signal
60 cm
Carrier frequency: 999 kHz (at 9 kHz step)
1,050 kHz (at 10 kHz step)

Procedure :

1. Set loop antenna A so that the loop antenna B input level becomes 50 dBμ (0.32 mV)
2. Tune the set to 999 kHz (at 9 kHz step) or 1,050 kHz (at 10 kHz step).
3. Adjust RV41 so that the TUNED indicator goes on.

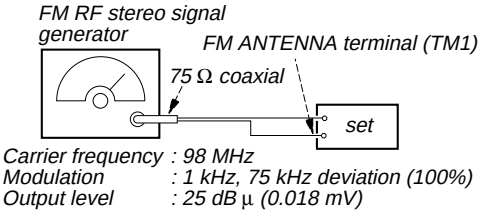
Adjustment Location : TCB board (see page 26)

FM Tuned Level Adjustment

Note : This adjustment should be performed after the AM Tuned Level Adjustment.

Setting :

Band : FM


FM RF stereo signal generator
FM ANTENNA terminal (TM1)
75 Ω coaxial
set
Carrier frequency : 98 MHz
Modulation : 1 kHz, 75 kHz deviation (100%)
Output level : 25 dB μ (0.018 mV)

Procedure :

1. Tune the set to 98 MHz
2. Adjust RV42 so that the TUNED indicator goes on.

Adjustment Location : TCB board (see page 26)

SW OSC Voltage Adjustment (EA, MY, SP, HK model)

Setting :

Band : SW

Procedure :

1. Connect digital voltmeter to diode D1 center lead and ground.
2. Adjust for a following value reading on digital voltmeter.

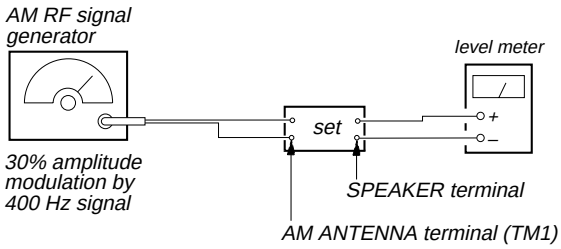
	Set frequency	Adjustment part	Reading on digital voltmeter
SW	5.95 MHz	T2	1.2 Vdc
	17.9 MHz	CV2	8.5 Vdc

Adjustment Location : TCB board (see page 26)

SW Tracking Adjustment (EA, MY, SP, HK model)

Setting :

Band : SW



Procedure :

Adjust for maximum reading on level meter.

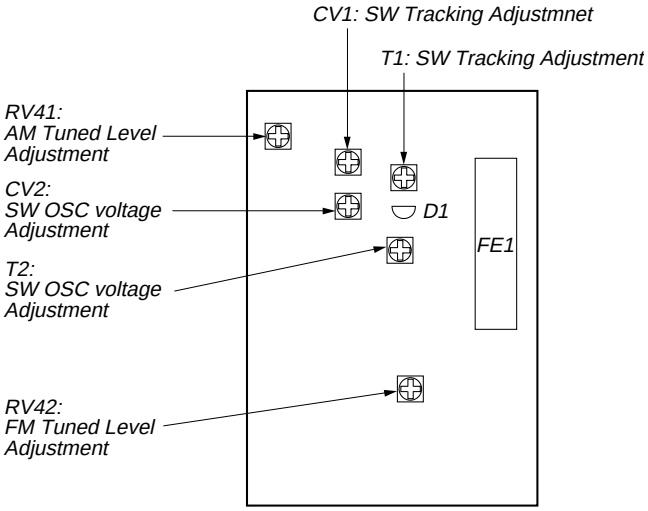
	Set frequency	Adjustment part
SW	7 MHz	T1
	17 MHz	CV1

- Repeat the procedures is each adjustment several times, and the OSC voltage and tracking adjustment should be finally done by the trimmer capacitors.

Adjustment Location : TCB board (see page 26)

Adjustment Location

[TCB BOARD] – Component side –



CD SECTION

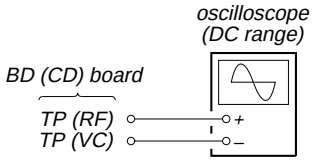
Note :

1. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
2. Use the oscilloscope with more than 10 MΩ impedance.
3. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

Focus Bias Adjustment

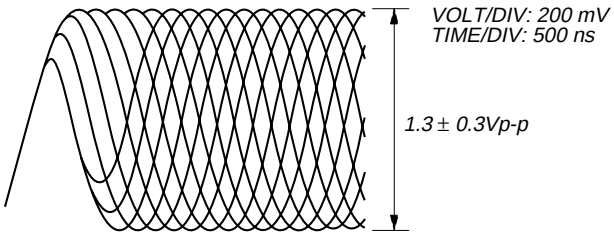
This adjustment is to be done when the optical pick-up is replaced.

Adjustment procedure :



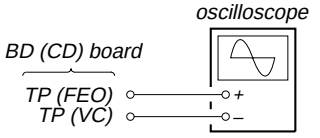
1. Connect oscilloscope to test point TP (VC) and TP (RF) on BD (CD) board.
2. Turned power switch ON. (Stop mode)
3. Put disc (YEDS-18) in and press the [▷ (CD)] key.
4. Adjust RV101 so that the oscilloscope waveform is as shown in the figure below (eye pattern).
   A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

• RF signal reference waveform (eye pattern)



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

S-Curve Check

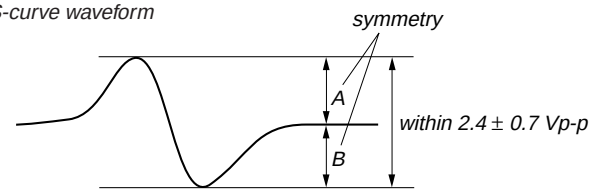


Procedure :

1. Connect oscilloscope to test point TP (VC) and TP (FEO) on BD (CD) board.
2. Connect between test point TP (FOK) and GND by lead wire.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)

5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2.4 ± 0.7 Vp-p.

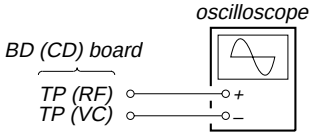
S-curve waveform



6. After check, remove the lead wire connected in step 2.

Note :
- Try to measure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

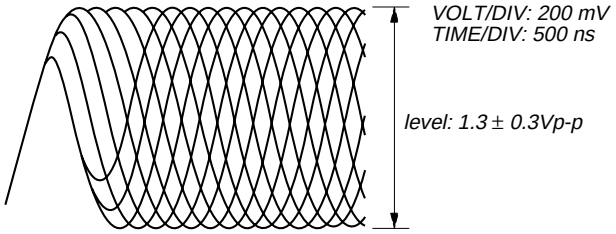


Procedure :
1. Connect oscilloscope to test point TP (VC) and TP (RF) on BD (CD) board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and press the ▷ (CD) key.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

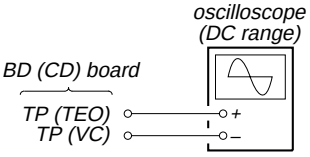
Note :

Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

RF signal waveform

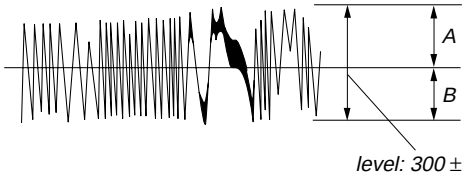


E-F Balance (Traverse) Check



Procedure :
1. Connect the TP (TEI) and TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (VC) and TP (TEO) on BD (CD) board.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and press the ▷ (CD) key.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 Vdc, and check this level.

Traverse waveform



specified level : • $\frac{\text{A–B}}{\text{2 (A+B)}} \times 100$ = less than ± 7%

• A+B= 300 ± 100 mVp-p

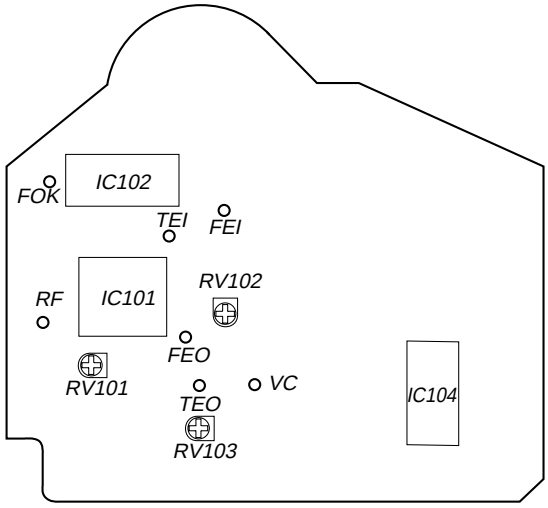
6. Remove the lead wire connected in step 1.

Focus/Tracking Gain Adjustment (RV102, RV103)

This gain has a margin, so even if it is slightly off. There is no problem.
Therefore, do not perform, this adjustment.
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

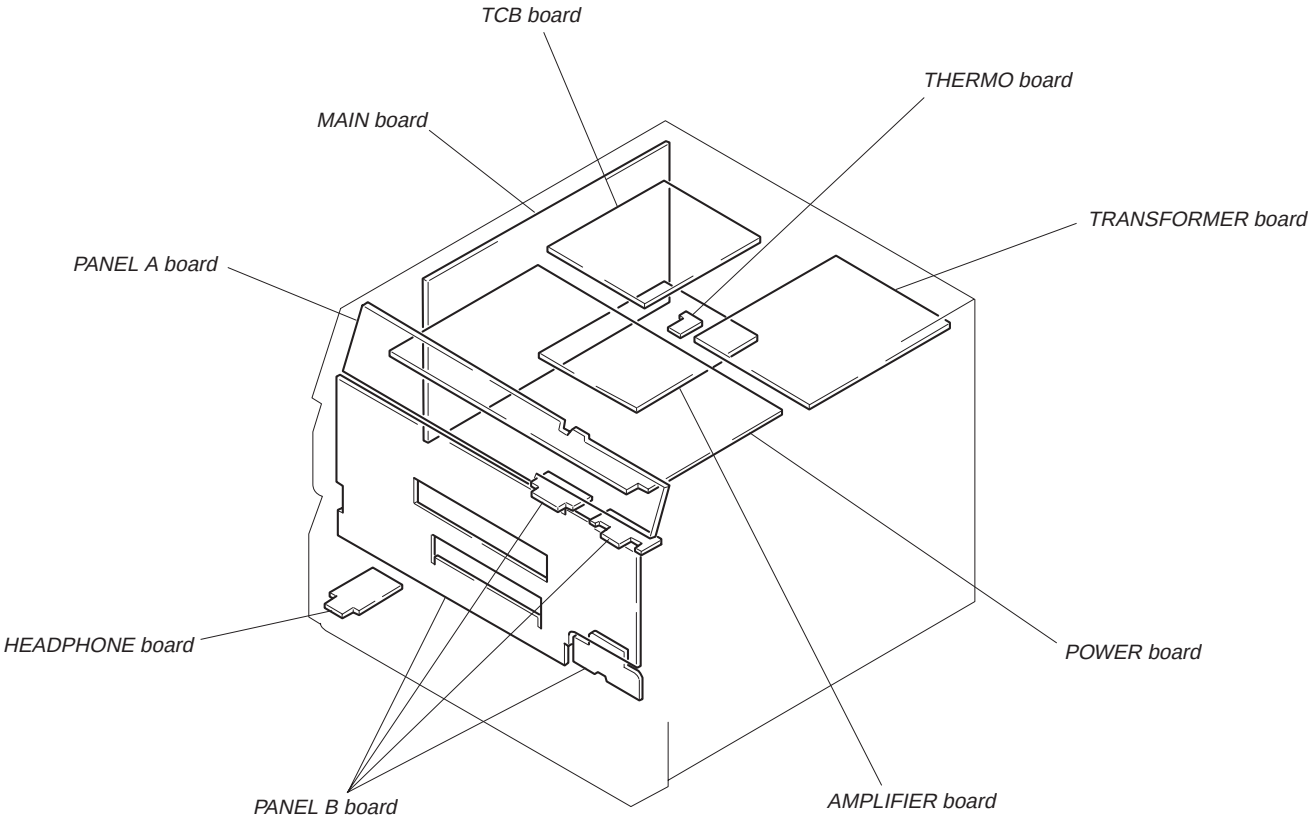
Adjustment Location :

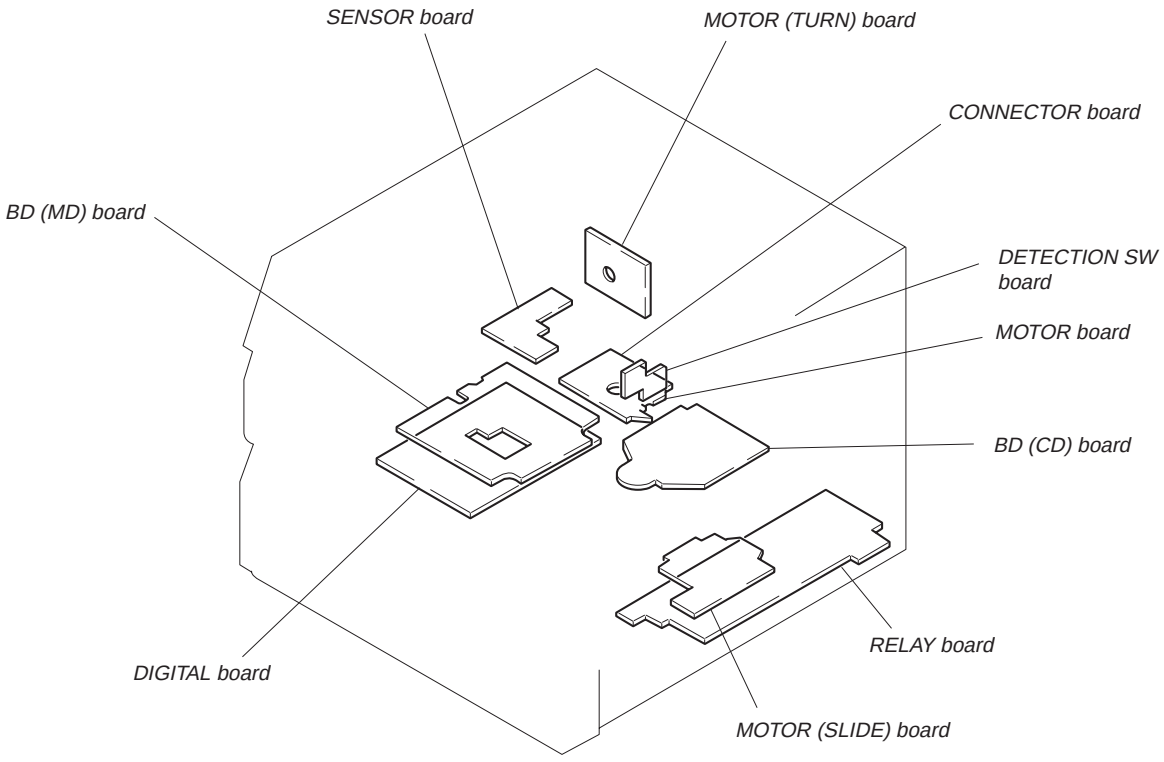
[BD (CD) BOARD] – Side B –



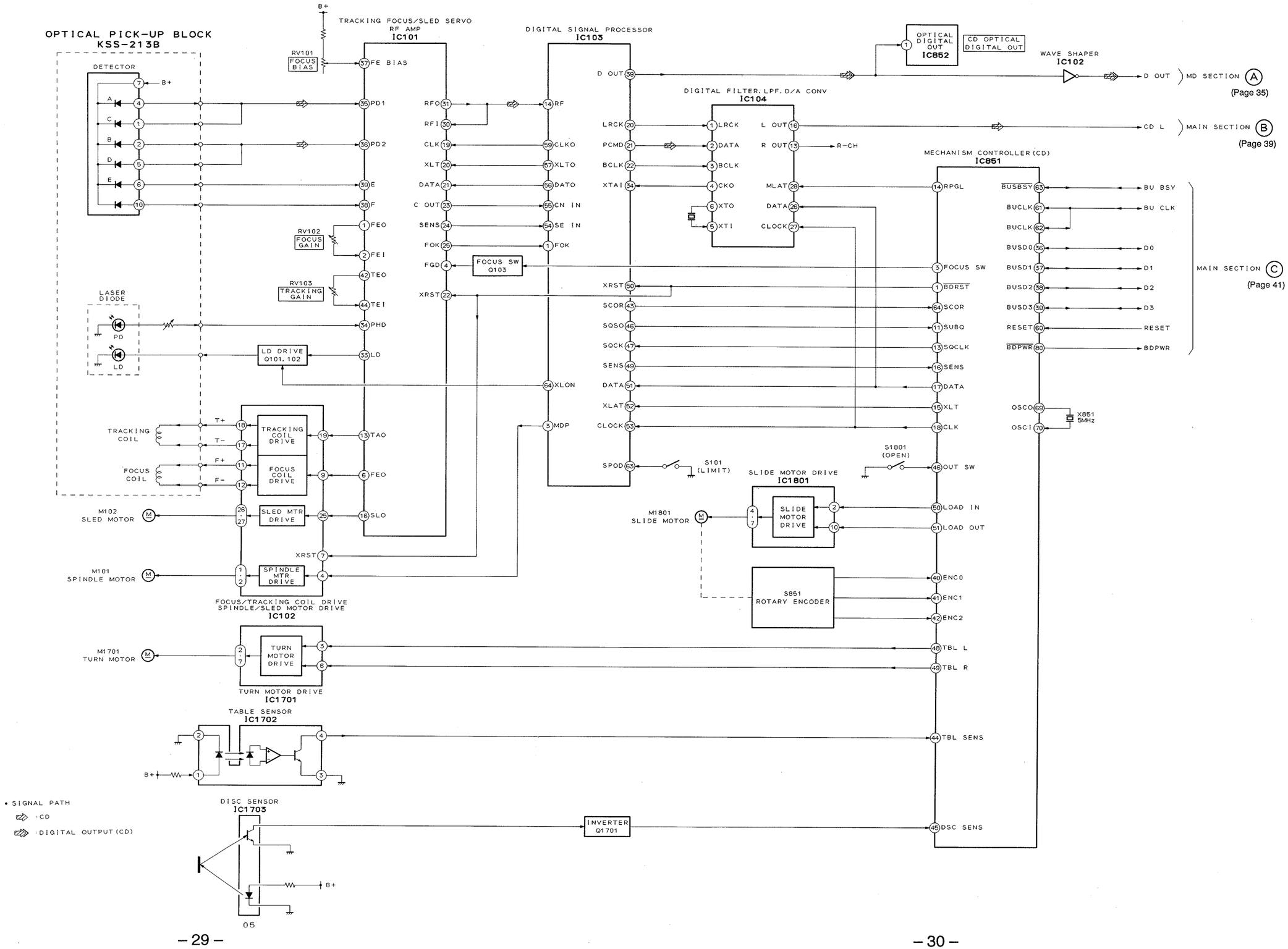
SECTION 6
DIAGRAMS

- **Circuit Boards Location**

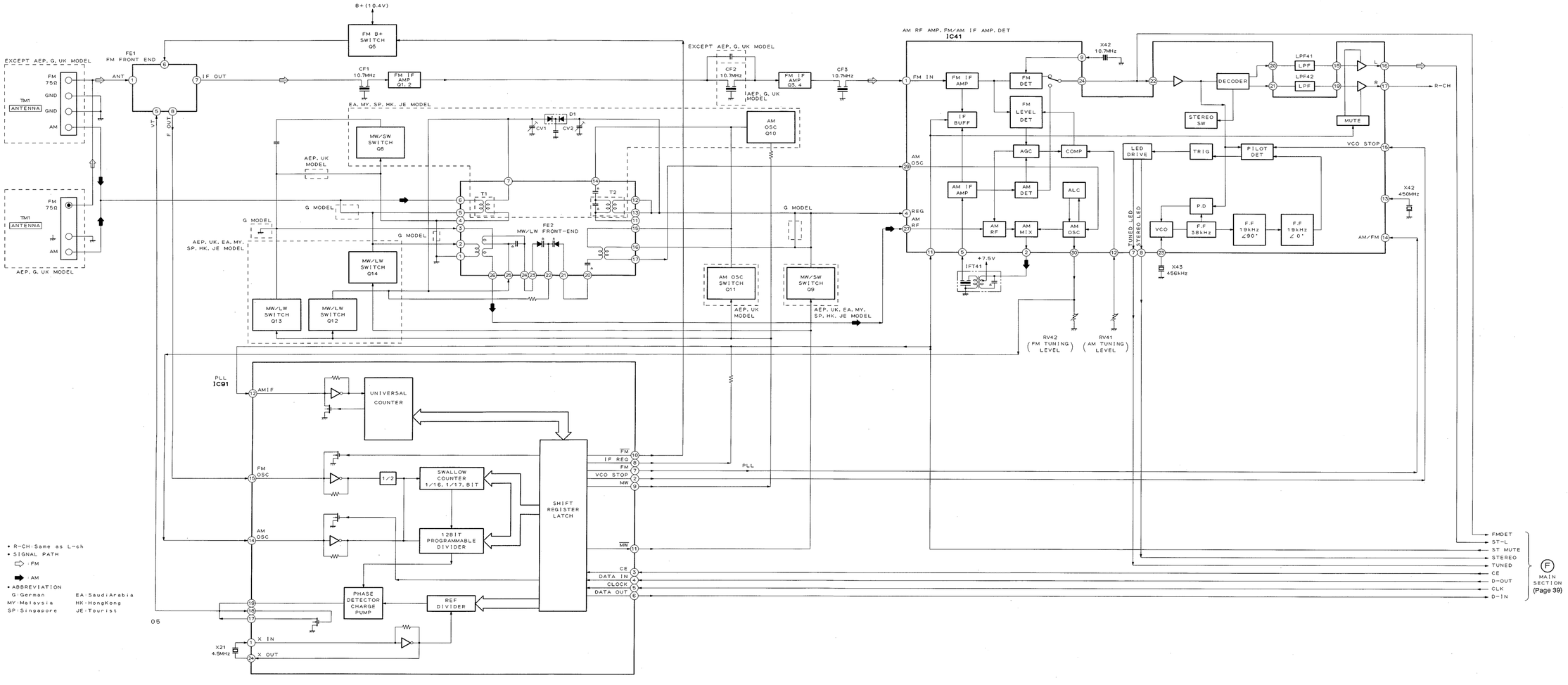




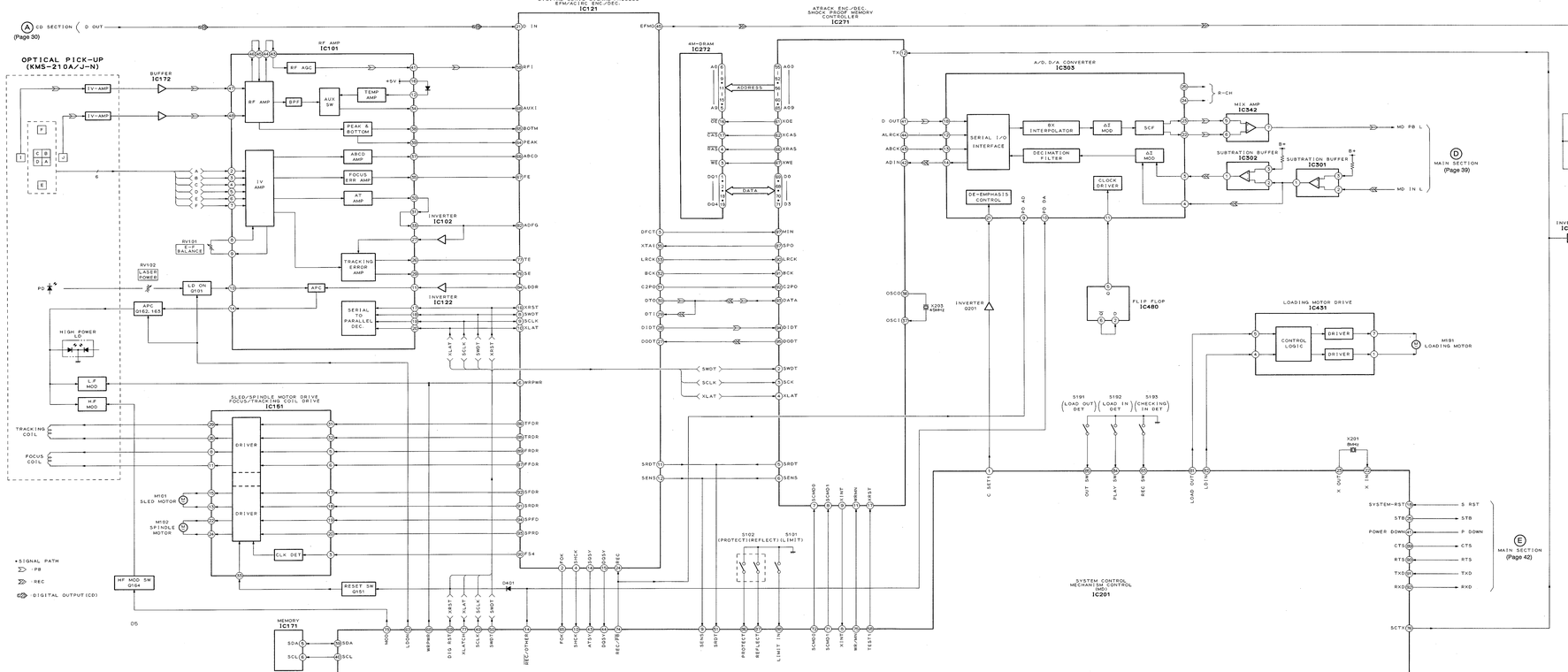
6-1. BLOCK DIAGRAMS
–CD SECTION–



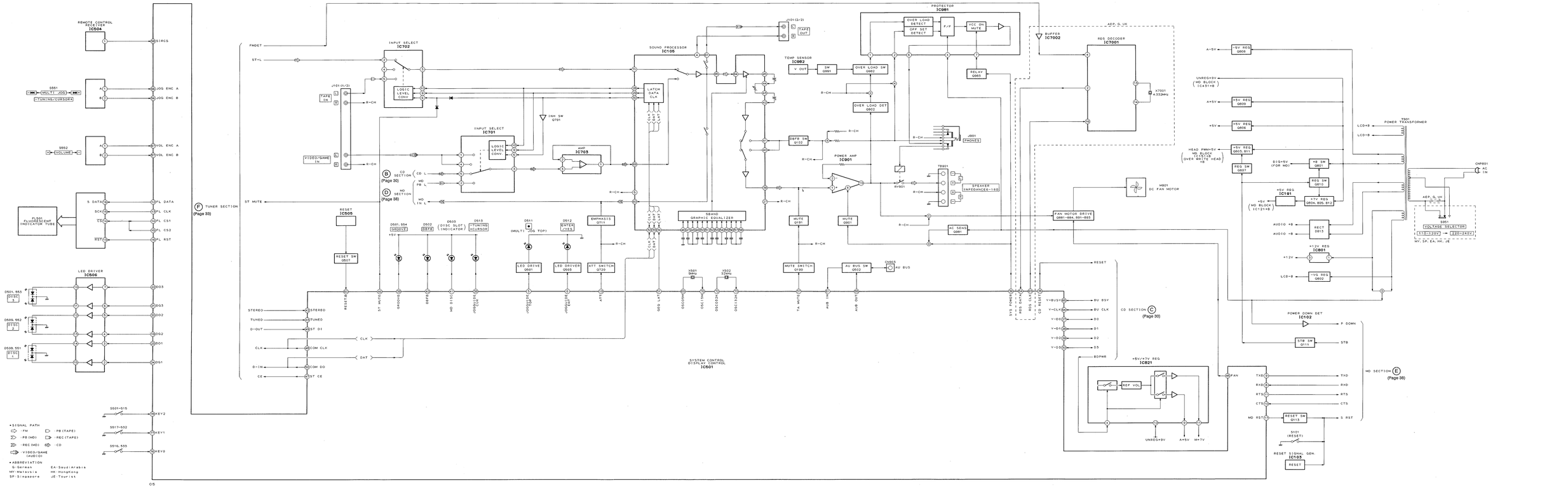
–TUNER SECTION–



–MD SECTION–

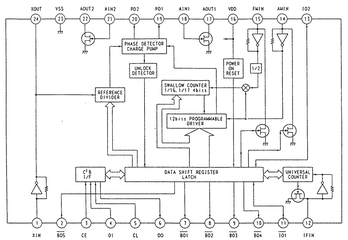

OPTICAL PICK-UP (KMS-210A/J-N)
BUFFER IC172
RF AMP IC101
DIGITAL SIGNAL PROCESS DIGITAL SERVO SIGNAL PROCESS EFM/ACIRC ENC/DEC. IC121
ATRAC ENC/DEC. SHOCK PROOF MEMORY CONTROLLER IC271
4M-DRAM IC272
A/D, D/A CONVERTER IC303
SERIAL I/O INTERFACE
8X INTERPOLATOR
DECIMATION FILTER
4F MOD
SCF
2F MOD
DE-EMPHASIS CONTROL
CLOCK GENERATOR
MIX AMP IC342
SUBTRACTION BUFFER IC302
SUBTRACTION BUFFER IC301
OVER WRITE HEAD DRIVE IC181
OVER WRITE HEAD DRIVE Q182
OVER WRITE HEAD DRIVE Q181
INVERTER IC182
HRM01 OVER WRITE HEAD
INVERTER IC102
INVERTER IC122
INVERTER Q201
FLIP FLOP IC480
LOADING MOTOR DRIVE IC431
MS01 LOADING MOTOR
SLED/SPINDLE MOTOR DRIVE FOCUS/TRACKING COIL DRIVE IC151
MT01 SLED MOTOR
MT02 SPINDLE MOTOR
SYSTEM CONTROL MECHANISM CONTROL IC201
MEMORY IC171
X201 8MHz
S191 (LOAD OUT DET)
S192 (LOAD IN DET)
S193 (CHECKING IN DET)
S101 (LIMIT)
S102 (PROTECT/REFLECT)
D031
RESET SW Q151
HF MOD SW Q104
A CD SECTION (Page 30)
D MAIN SECTION (Page 39)
E MAIN SECTION (Page 42)
• SIGNAL PATH
PB
REC
DIGITAL OUTPUT (CD)

–MAIN SECTION–

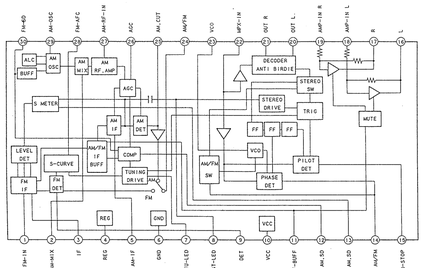


• IC Block Diagrams –TUNER Section–

IC21 LC72130



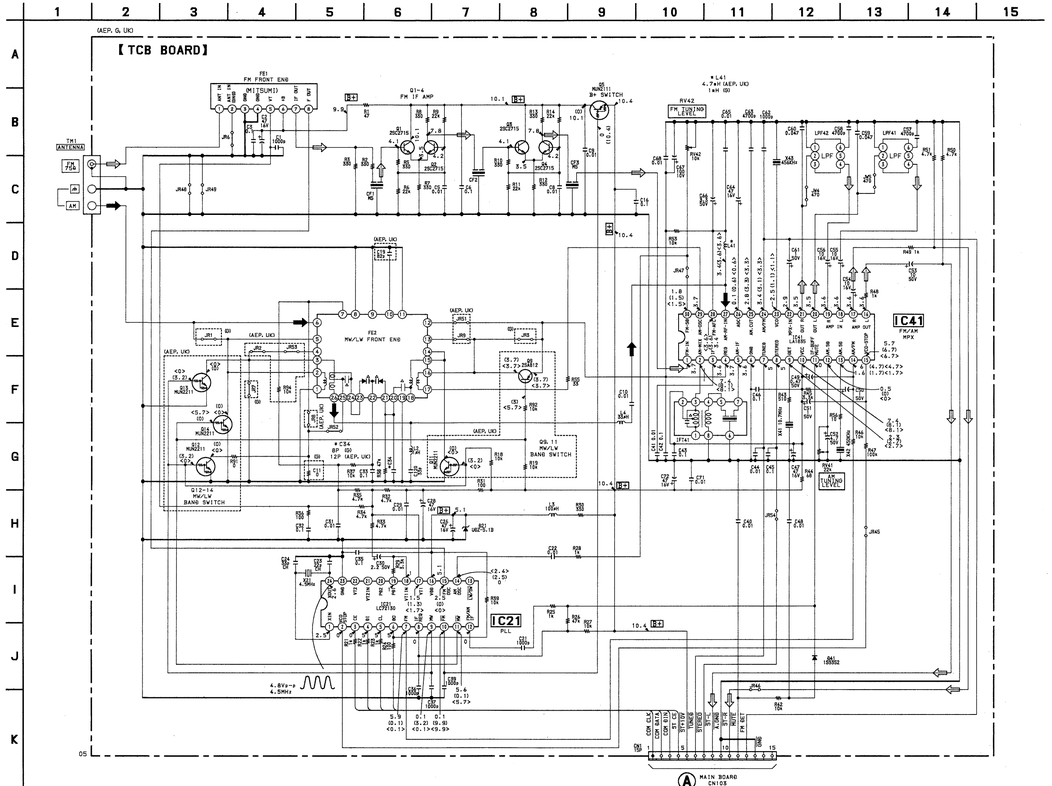
IC41 LA1835



Note on Schematic Diagram:

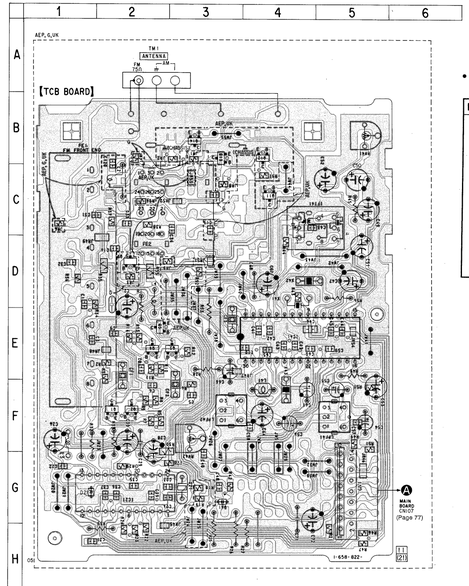
- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line.
- : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : AM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ➡ : AM
- Abbreviation
  G : German

6-2. SCHEMATIC DIAGRAM –TUNER SECTION– (AEP, G, UK MODEL)



6-3. PRINTED WIRING BOARD –TUNER SECTION– (AEP, G, UK MODEL)

• See page 28 for Circuit Boards Location.



• Semiconductor Location

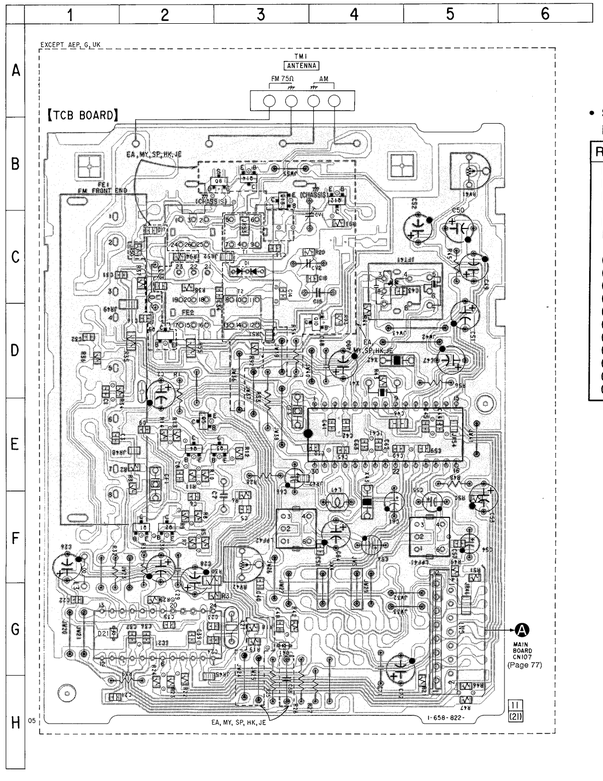
Ref. No.	Location
D21	G-1
D41	G-3
IC21	G-2
IC41	E-4
Q1	F-2
Q2	F-2
Q3	E-3
Q4	E-2
Q5	E-2
Q9	D-2
Q11	C-4
Q12	B-4
Q13	B-3
Q14	B-3

Note on Printed Wiring Board:

- ○—— : parts extracted from the component side.
- △ : internal component.
- : Pattern from the side which enables seeing.
- Abbreviation
  G : German

6-4. PRINTED WIRING BOARD –TUNER SECTION– (EXCEPT AEP, G, UK MODEL)

• See page 28 for Circuit Boards Location.



• **Semiconductor Location**

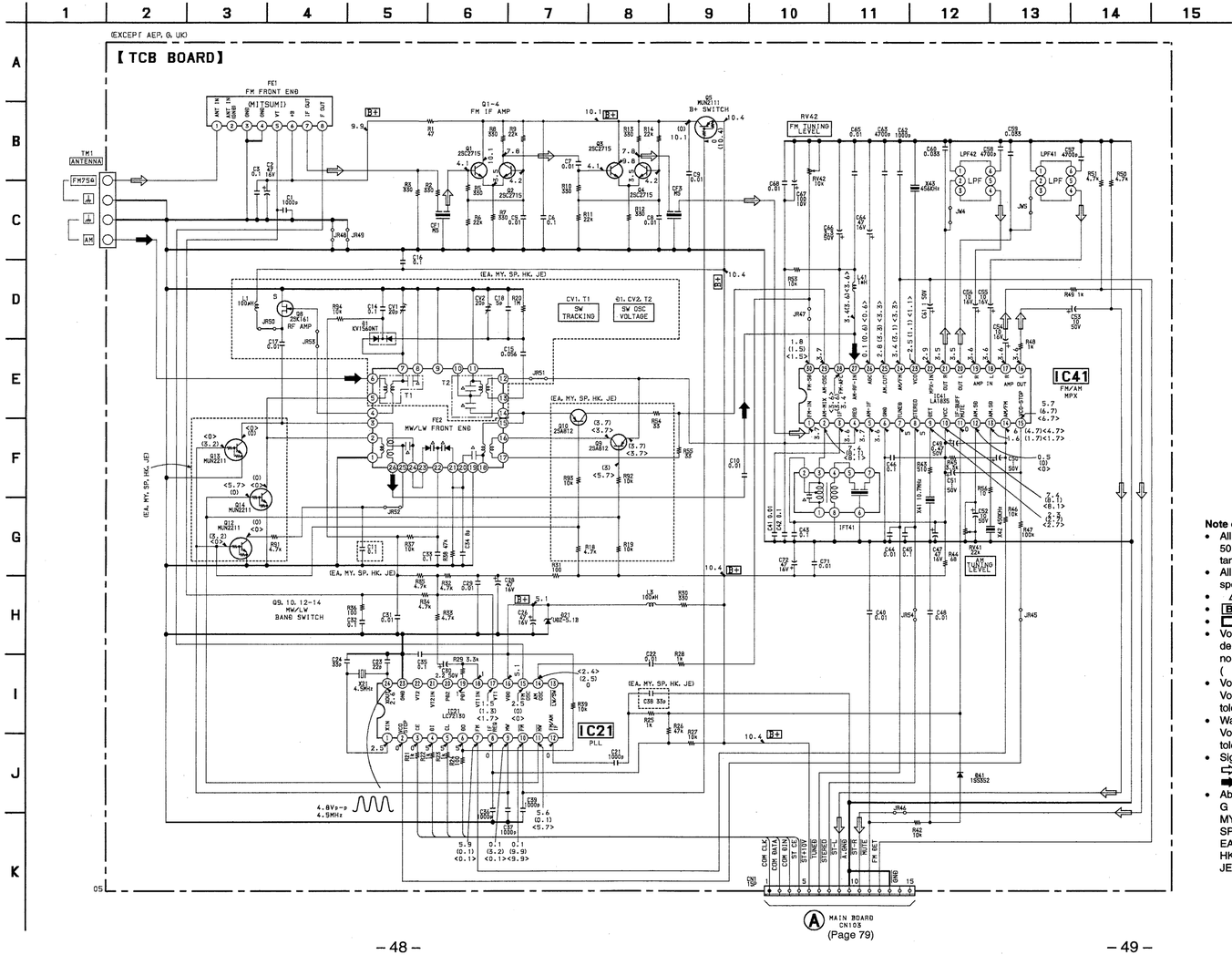
Ref. No.	Location
D1	C-3
D21	G-1
D41	G-3
IC21	G-2
IC41	E-4
Q1	F-2
Q2	F-2
Q3	E-3
Q4	E-2
Q5	E-2
Q8	B-3
Q9	D-2
Q10	D-4
Q12	B-4
Q13	B-3
Q14	B-3

Note on Printed Wiring Board:

- ○——— : parts extracted from the component side.
- △ : internal component.
- ▨ :Pattern from the side which enables seeing.
- Abbreviation
  - G : German
  - MY : Malaysia
  - SP : Singapore
  - EA : Saudi Arabia
  - HK : Hong Kong
  - JE : Tourist

6-5. SCHEMATIC DIAGRAM –TUNER SECTION– (EXCEPT AEP, G, UK MODEL)

• See page 43 for IC Block Diagrams.



Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : AM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ➡ : AM
- Abbreviation
  - G : German
  - MY : Malaysia
  - SP : Singapore
  - EA : Saudi Arabia
  - HK : Hong Kong
  - JE : Tourist

6-6. PRINTED WIRING BOARD –CD SECTION– • See page 28 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location
D1701	E-2
D1801	I-9
D1805	J-8
IC101	E-13
IC102	C-13
IC103	E-7
IC104	F-15
IC1701	E-2
IC1702	C-2
IC1703	A-3
IC1801	J-8
Q101	D-10
Q102	D-12
Q103	F-10
Q1701	H-2

Note on Printed Wiring Board:
- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▒▒ :Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.

【SENSOR BOARD】

【MOTOR (TURN) BOARD】

【CONNECTOR BOARD】

RELAY BOARD CN854 (Page 73)

【BD(CD)BOARD】(SIDE A)

【MOTOR (SLIDE) BOARD】

5851 ROTARY ENCODER

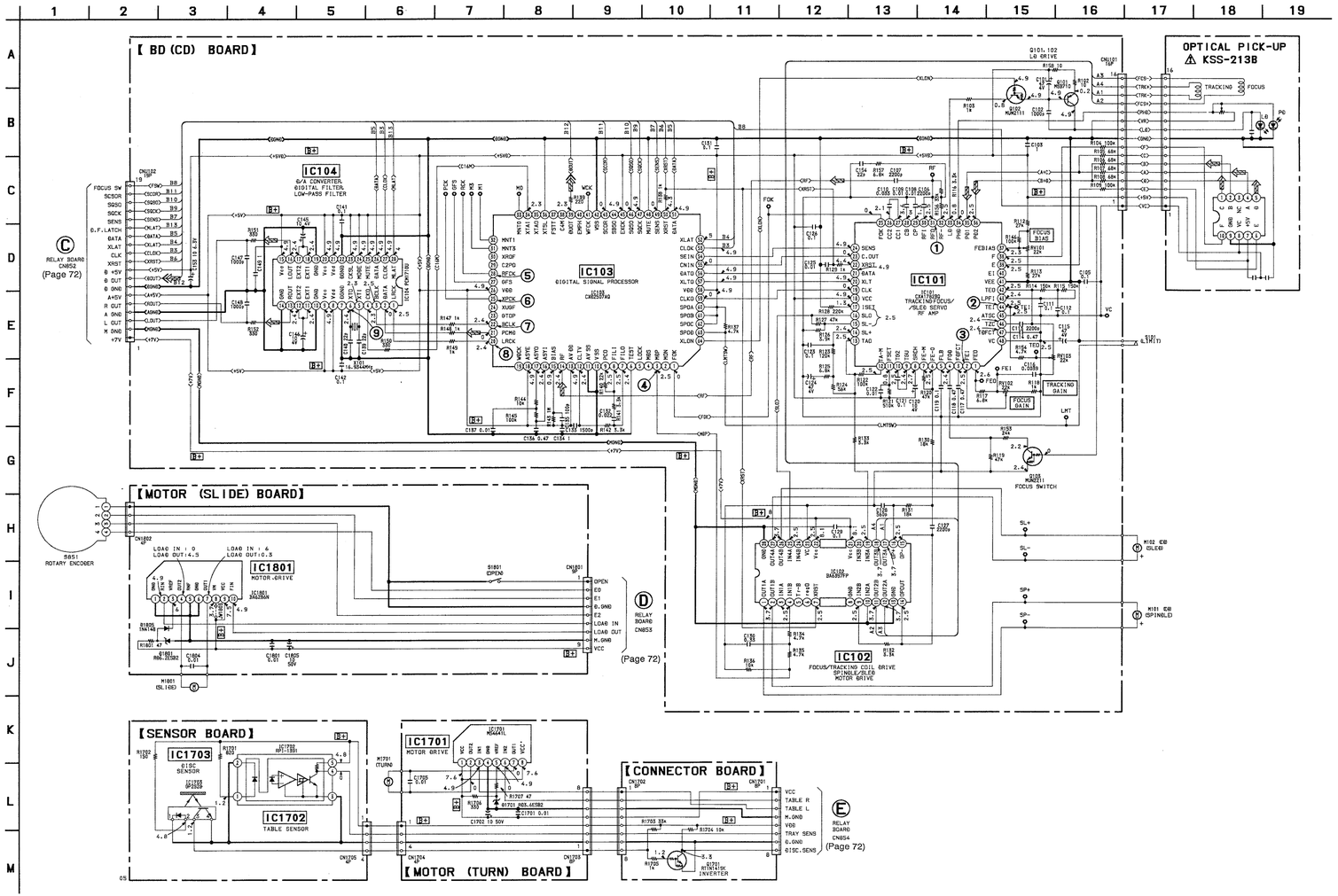
RELAY BOARD CN853 (Page 74)

【BD(CD)BOARD】(SIDE B)

RELAY BOARD CN852 (Page 73)

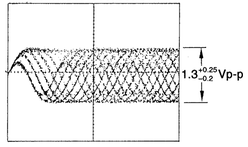
(OPTICAL PICK-UP (BLOCK KSS-213B))

6-7. SCHEMATIC DIAGRAM –CD SECTION– • See page 97 for IC Block Diagram.

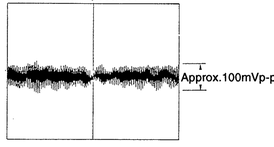


• Waveforms

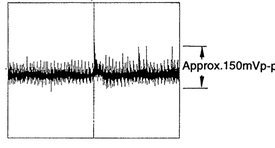
❶ IC101 ⑨ (RFO) (CD PLAY MODE)
500mV/DIV, 500nsec/DIV



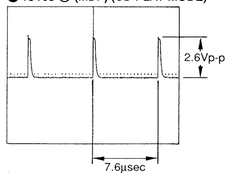
❷ IC101 ㊹ (TEI) (CD PLAY MODE)
50mV/DIV, 1µsec/DIV



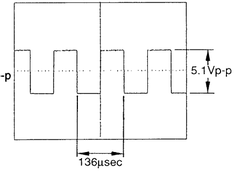
❸ IC101 ② (FEI) (CD PLAY MODE)
50mV/DIV, 1µsec/DIV



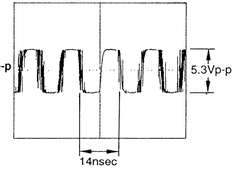
❹ IC103 ③ (MDP) (CD PLAY MODE)



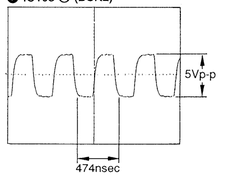
❺ IC103 ㉘ (RFCK)



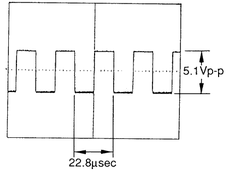
❻ IC103 ㉙ (XPCK)



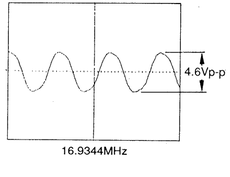
❼ IC103 ㉒ (BCKL)



❽ IC103 ㉚ (LRCK)



❾ IC104 ⑥ (XTO)



Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ : B+ Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY (CD)
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
  ⇨ : digital out (CD)

6-8. PRINTED WIRING BOARD –MD SECTION– • See page 28 for Circuit Boards Location.

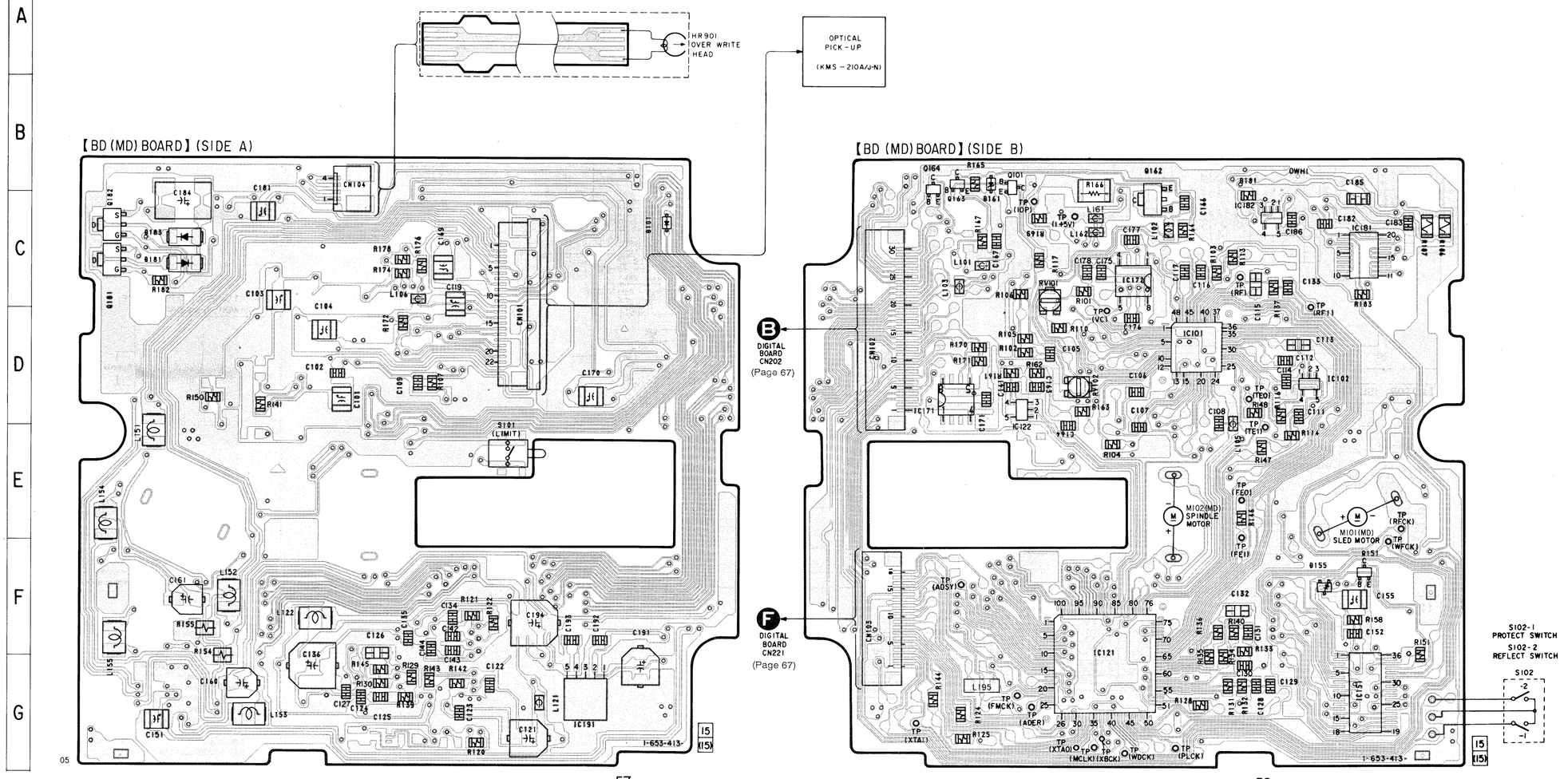
• **Semiconductor Location**

Ref. No.	Location
D101	C-6
D155	F-11
D161	B-9
D181	C-2
D183	C-2
IC101	D-10
IC102	D-11
IC121	F-9
IC122	D-9
IC151	G-12
IC171	D-8
IC172	C-10
IC181	C-12
IC182	C-11
IC191	G-5
Q101	B-9
Q151	F-12
Q162	B-10
Q163	B-8
Q164	B-8
Q181	C-1
Q182	C-1

Note on Printed Wiring Board:
- ○——— : parts extracted from the component side.
- ○ : Through hole.
- ▒▒▒ :Pattern from the side which enables seeing.

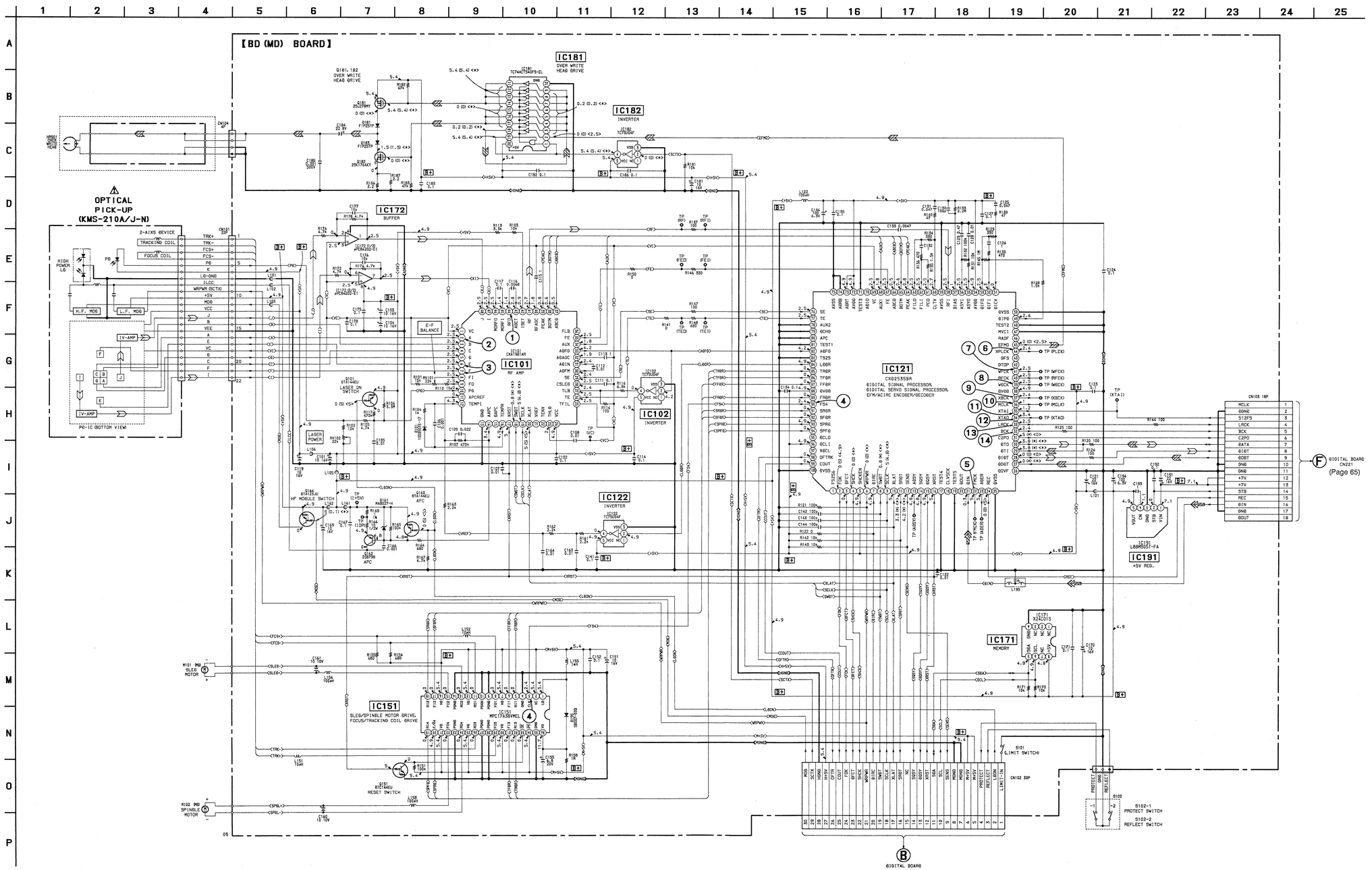
(The other layers' patterns are not indicated.)

Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.



6-9. SCHEMATIC DIAGRAM –MD SECTION–

• See page 106 for IC Block Diagrams. • See pages 109 to 112 for IC Pin Function Description. • See page 75 for Waveforms.



Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line.
- : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : STOP (MD)
  ( ) : PLAY (MD)
  < > : REC (MD)
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : PB (MD)
  : REC (MD)
  : digital out (CD)

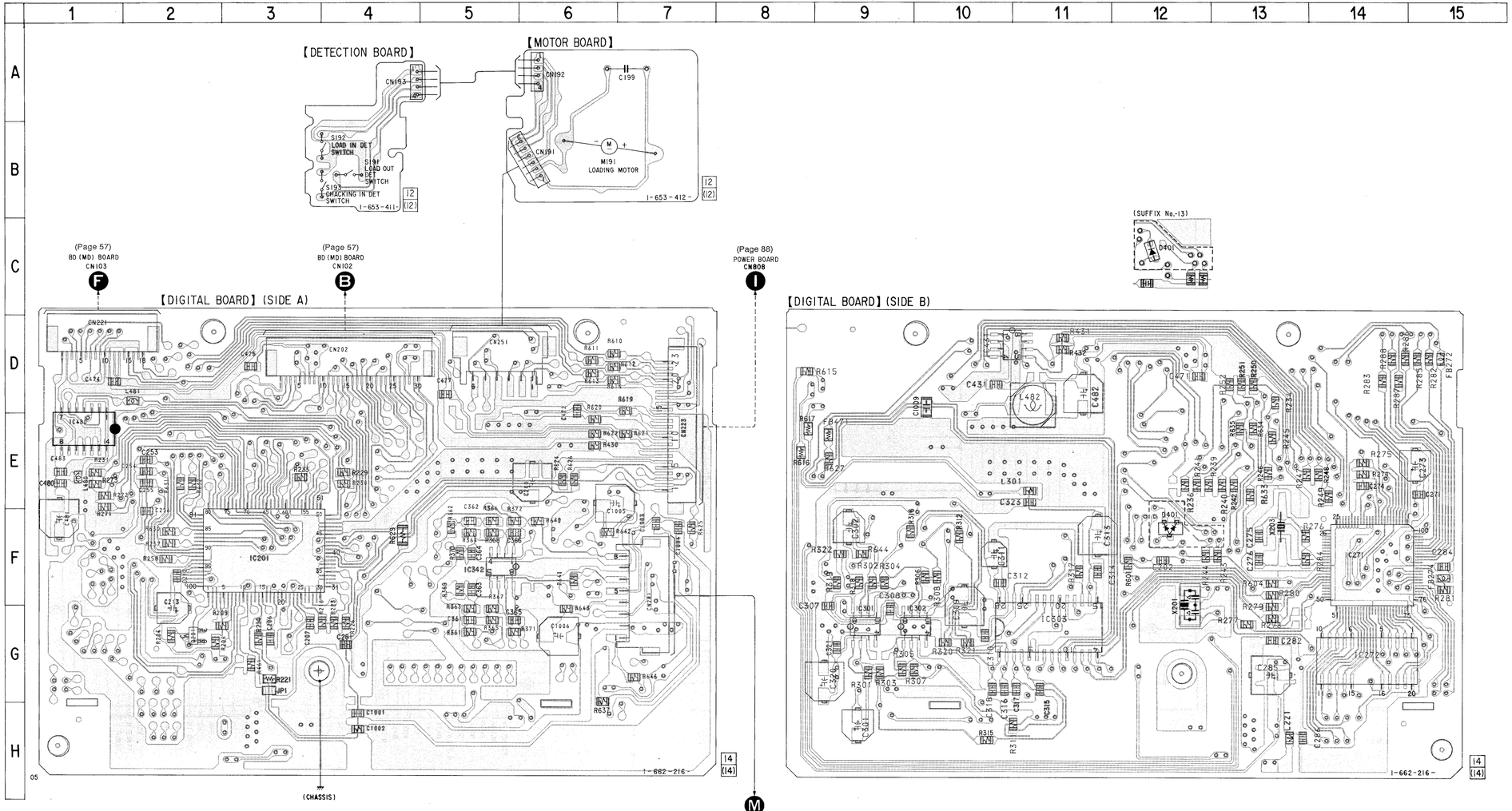
6-10. SCHEMATIC DIAGRAM –DIGITAL SECTION–

• See page 95 for Waveforms. • See page 107 for IC Block Diagrams. • See pages 113 to 118 for IC Pin Function Description.

【DETECTION SW BOARD】
LOAD OUT DET SWITCH S191
CHACKING IN DET SWITCH S193
LOAD IN DET SWITCH S192
CN193 4P
GND
PLAY SW
OUT SW
REC SW
【MOTOR BOARD】
CN191 6P
OUT SW
PLAY SW
REC SW
GND
LOAD-OUT
LOAD-IN
CN192 4P
M191 LOADING MOTOR
C199 0.1
【DIGITAL BOARD】
CN251 6P
OUT-SW
PLAY-SW
REC-SW
GND
LOADOUT
LOADIN
IC431 LOADING MOTOR DRIVE
IC431 BA6287F-T1
IC302 SUBTRATION BUFFER
IC301 SUBTRATION BUFFER
IC301 (2/2) M5218AFP
IC302 (2/2) M5218AFP
IC301 (1/2) M5218AFP
IC302 (1/2) M5218AFP
IC303 A/D, D/A CONVERTER
IC303 AK4506-VS-E1
IC342 MIX AMP
IC342 (2/2) M5218AFP
IC342 (1/2) M5218AFP
CN281 8P
AD.L
AD.G
AD.R
+V
-V
DA.L
DA.G
DA.R
MAIN BOARD CN101 (Page 82)
(CHASSIS)
IC272 4M-DRAM
IC272 M5M44400BJ-7L2
IC201 SYSTEM CONTROL, MECHANISM CONTROLLER (MD)
IC201 M37610MD-068FP
Q201 UN2213 INVERTER
IC271 ATRACK ENCORDER/DECORDER, SHOCK PROOF MEMORY CONTROLLER
IC271 CXD2536CR
X201 8MHz
X203 45MHz
CN202 30P
LIMIT-IN
LDON
REFRECT
PROTECT
M+5V
M+5V
MGND
MGND
SENS
SCL
SDA
XRST
DQSY
SQSY
NC
SRDT
XLAT
SCLK
SWDT
DIRC
WRPWR
SHCK
DFCT
FOK
COUT
DFTR
H+5V
HGND
SCTX
MOD
BD (MD) BOARD CN102 (Page 61)
IC480 MC74HC74AF
IC480 FLIP-FLOP
CN221 18P
MCLK
DGND
512FS
LRCK
BCK
C2PO
DATA
DIDT
DODT
GND
GND
+7V
+7V
STB
REC
DIN
GND
DOUT
BD (MD) BOARD CN103 (Page 62)
CN223 23P
RXD
TXD
RTS
CTS
UREG.+9V
SYS.+5V
B.UP+5V
DIG+5V
DIG.SYS.GND
DIG.SYS.GND
HEAD.PWM.+5V
HEAD.PWM.+5V
HEAD.PWM.GND
HEAD.PWM.GND
REG.+7V
REG.GND
REG.GND
STB
S.RST
P.DOWN
DIN
NO USE
NO USE
POWER BOARD CN808 (Page 83)
D401 DCC010 (SUFFIX NO.-14) 1SS352 (SUFFIX NO.-13)

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- B+ : B+ Line.
- B– : B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY (MD)
  ( ) : REC (MD)
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : PB (MD)
  : REC (MD)
  : PB (digital out)
  : REC (digital in)
  : digital out (CD)



• **Semiconductor Location**

Ref. No.	Location
D401	F-12
IC201	F-3
IC271	F-14
IC272	G-14
IC301	G-9
IC302	G-9
IC303	G-11
IC342	F-5
IC431	D-10
IC480	E-1
Q201	G-2

Note on Printed Wiring Board:
- ⟷ : parts extracted from the component side.
- ○ : Through hole.
- △ : internal component.
- ▒▒ : Pattern from the side which enables seeing.

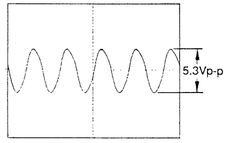
(The other layers' patterns are not indicated.)

Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.

6-12. SCHEMATIC DIAGRAM –RELAY SECTION–

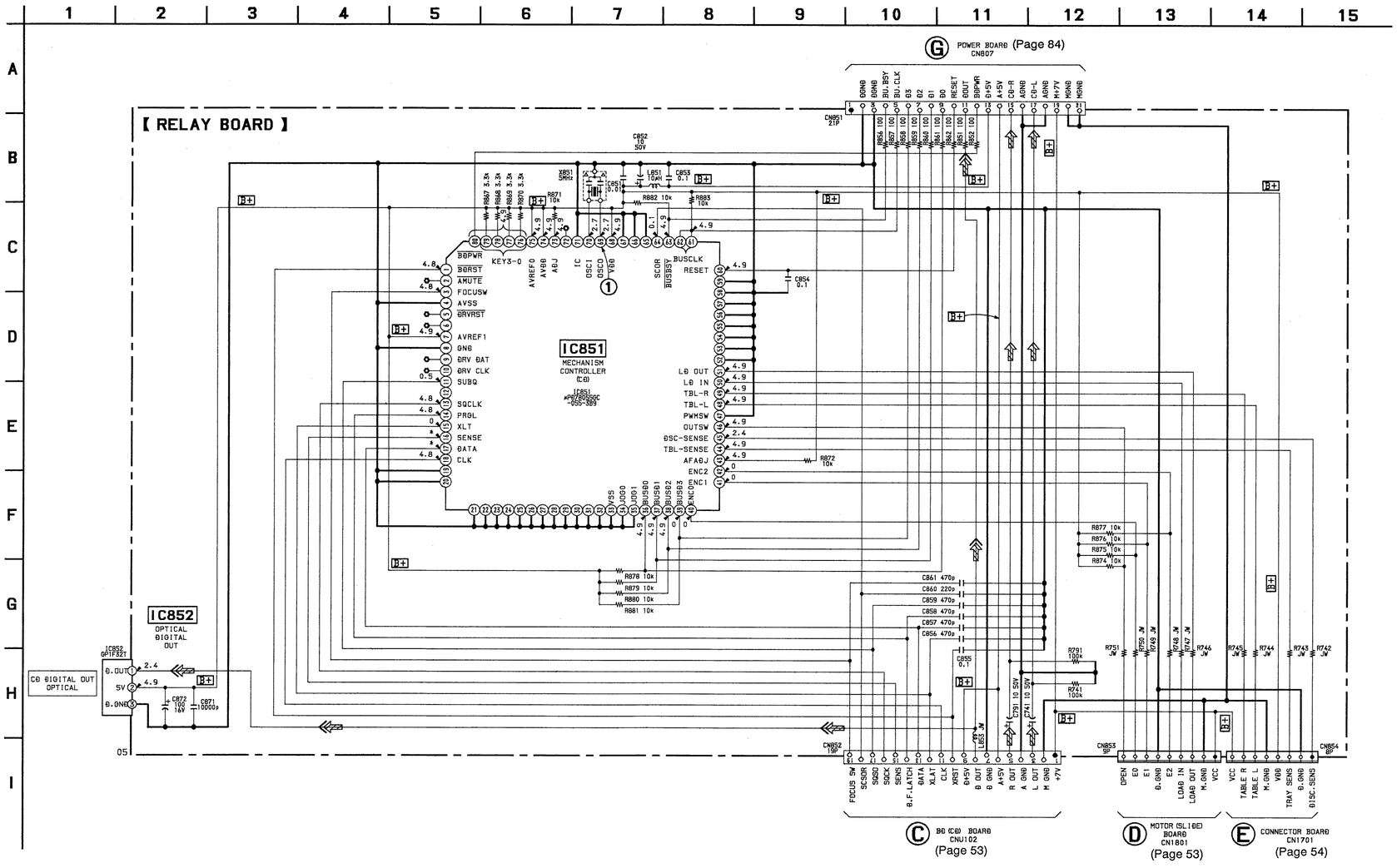
• **Waveform**

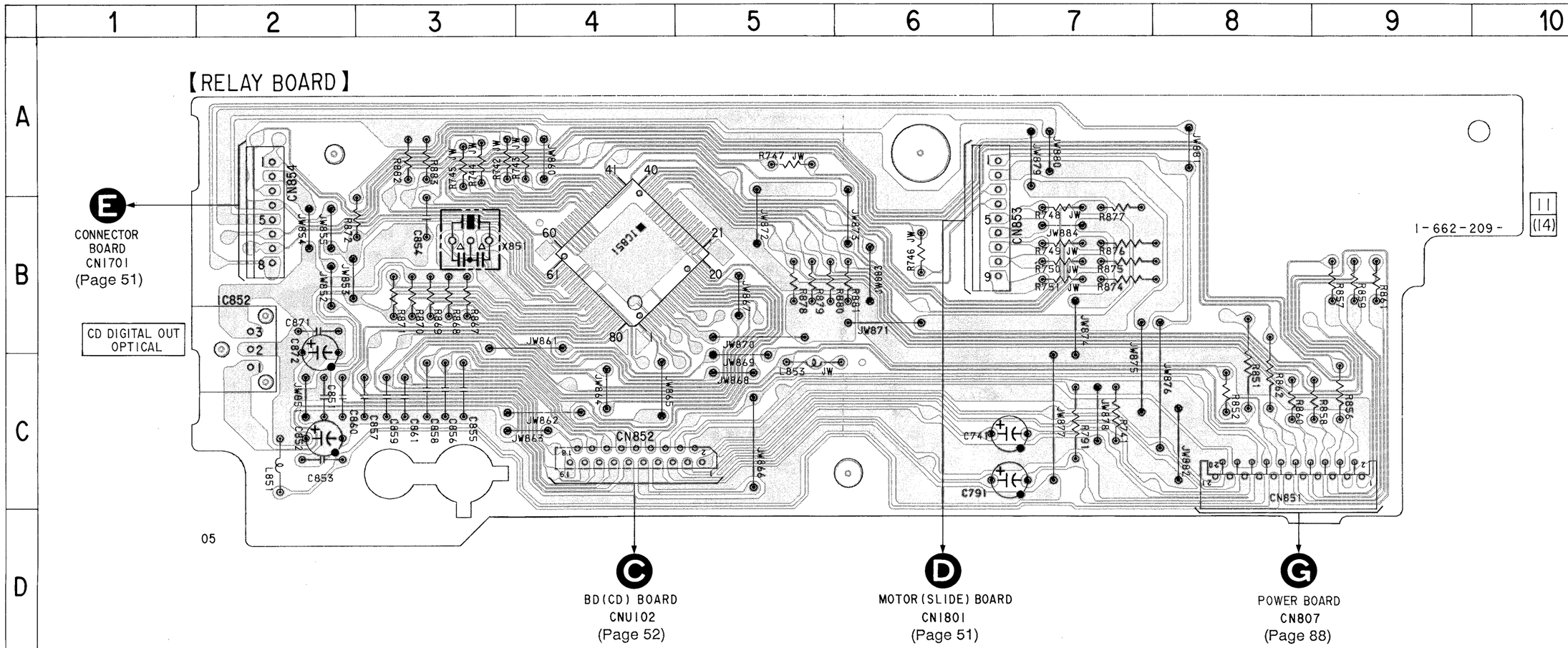
❶ IC851 ㉘ (OSCO) (CD PLAY MODE)



Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY (CD)
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
  ⇛ : digital out (CD)





- **Semiconductor Location**

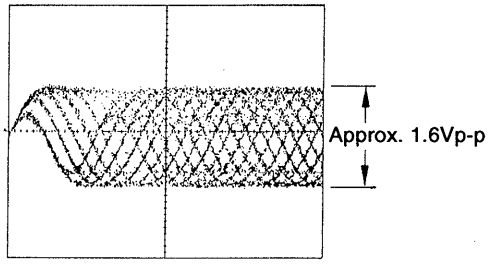
Ref. No.	Location
IC851	B-4
IC852	B-2

Note on Printed Wiring Board:
- o—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- △ : internal component.
- ▒ :Pattern from the side which enables seeing.

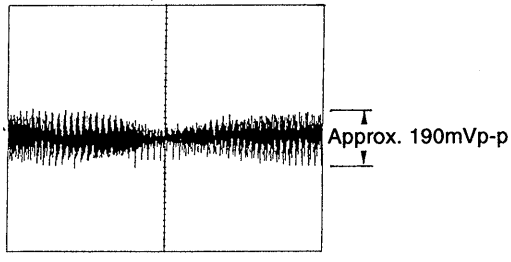
• **Waveforms**

–MD Section–

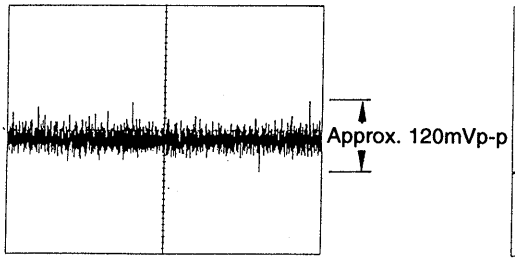
❶ IC101 ㊹ (RFO) (MD PLAY MODE)
500mV/DIV, 500nsec/DIV



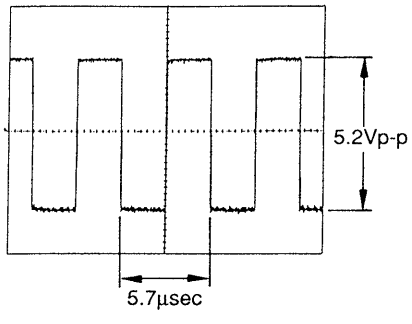
❷ IC101 ② (A) (MD PLAY MODE)
100mV/DIV, 500nsec/DIV



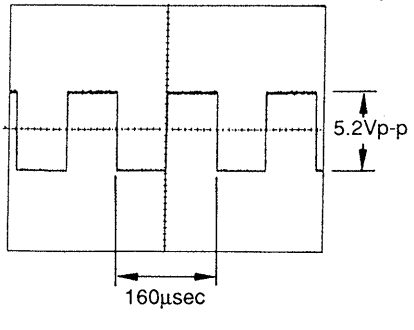
❸ IC101 ⑥, ⑦ (E, F) (MD PLAY MODE)
50mV/DIV, 500nsec/DIV



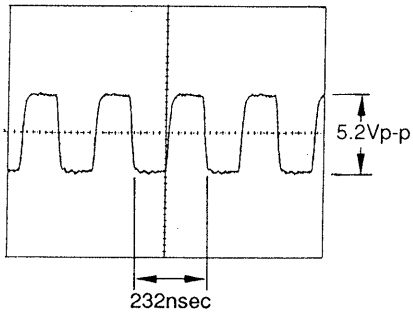
❹ IC121 ㊿ (FS4), IC151 ③ (CLK)
(MD PLAY MODE)



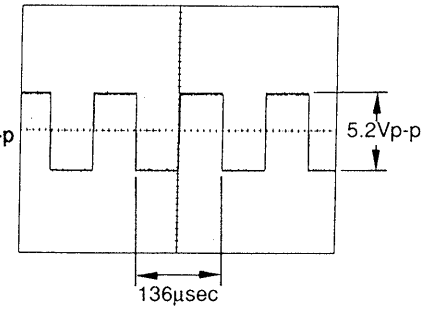
❺ IC121 ㉒ (FMCK) (MD REC MODE)



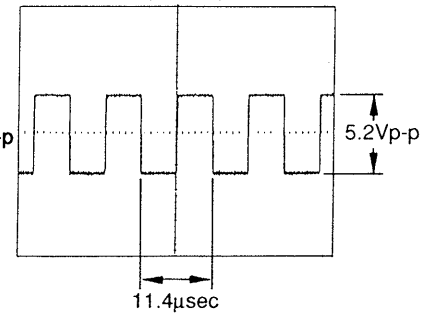
❻ IC121 ㊹ (XPLCK)



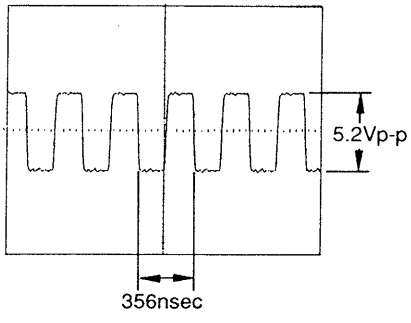
❼ IC121 ㊶ (WFCK)



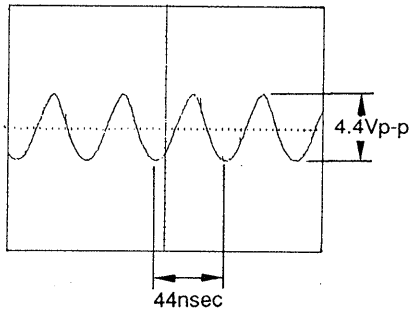
❽ IC121 ㊴ (WDCK)



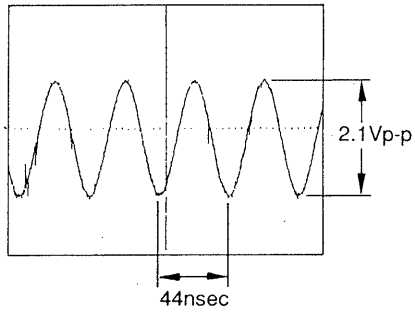
❾ IC121 ㊲ (XBCK)



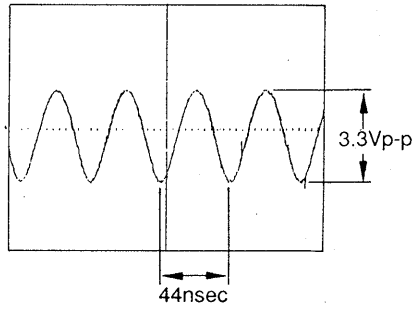
❿ IC121 ㊱ (MCLK)



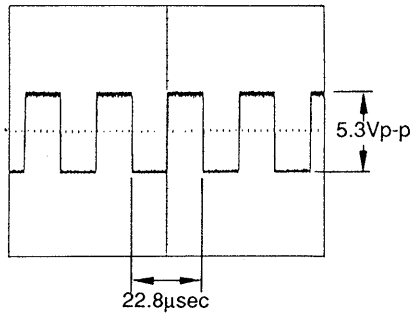
⓫ IC121 ㉟ (XTAI)



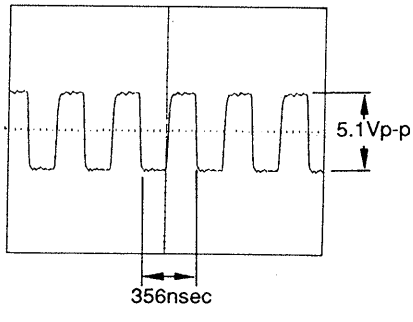
⓬ IC121 ㉞ (XTAO)



⓭ IC121 ㉝ (LRCK)



⓮ IC121 ㉜ (BCK)



6-14. PRINTED WIRING BOARD –MAIN SECTION–

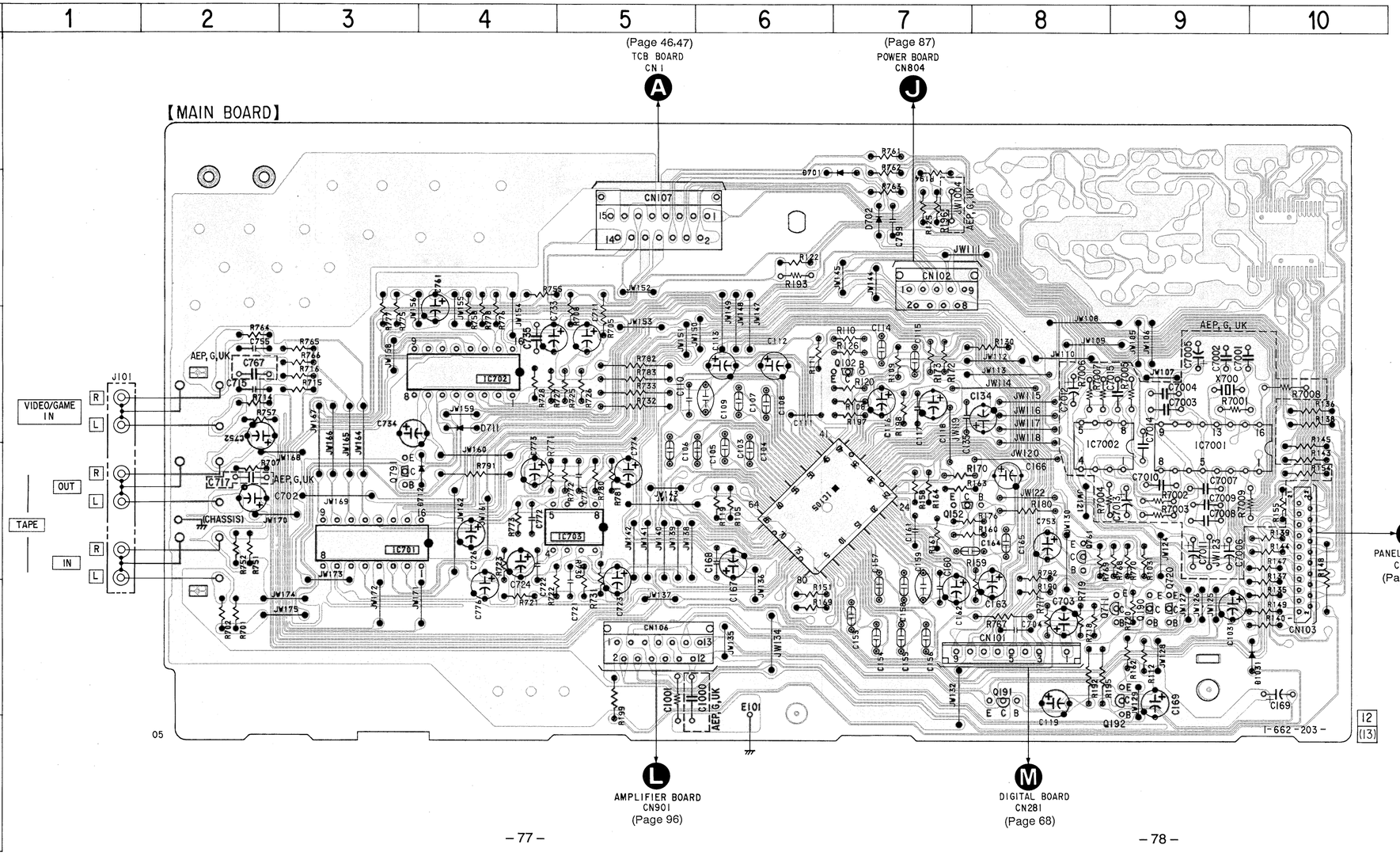
• See page 28 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location
D701	B-7
D702	B-7
D711	C-4
D712	D-4
D1031	E-10
IC105	D-6
IC701	D-3
IC702	C-4
IC703	D-5
IC7001	C-9
IC7002	C-8
Q102	C-7
Q152	D-7
Q190	E-9
Q191	E-8
Q192	E-9
Q711	E-9
Q720	E-9
Q761	D-8
Q791	D-3

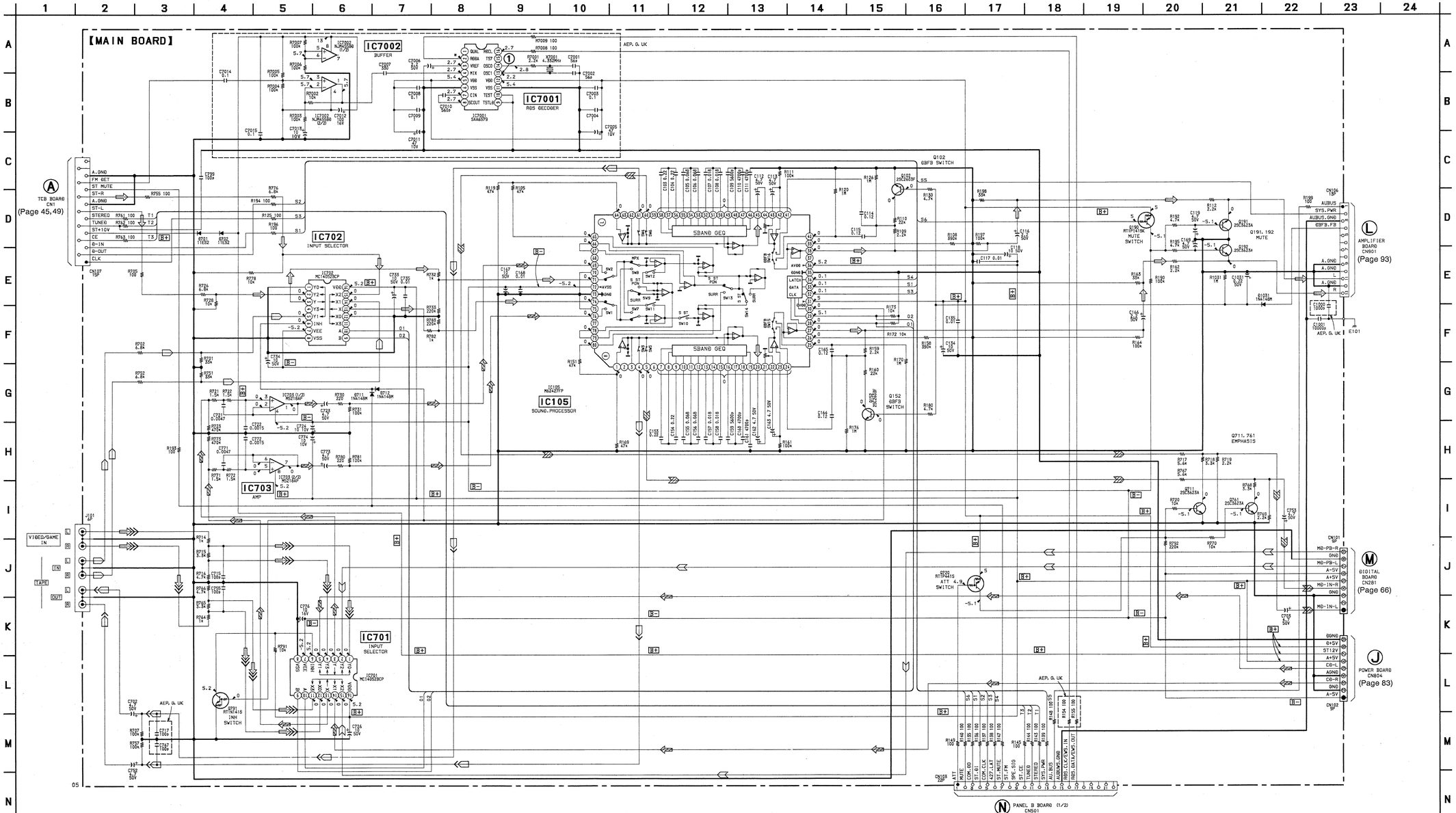
Note on Printed Wiring Board:

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- △ : internal component.
- ▨ :Pattern from the side which enables seeing.
- Abbreviation
  G : German

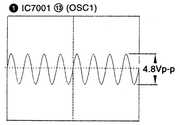


6-15. SCHEMATIC DIAGRAM –MAIN SECTION–

• See page 86 for IC Block Diagrams.



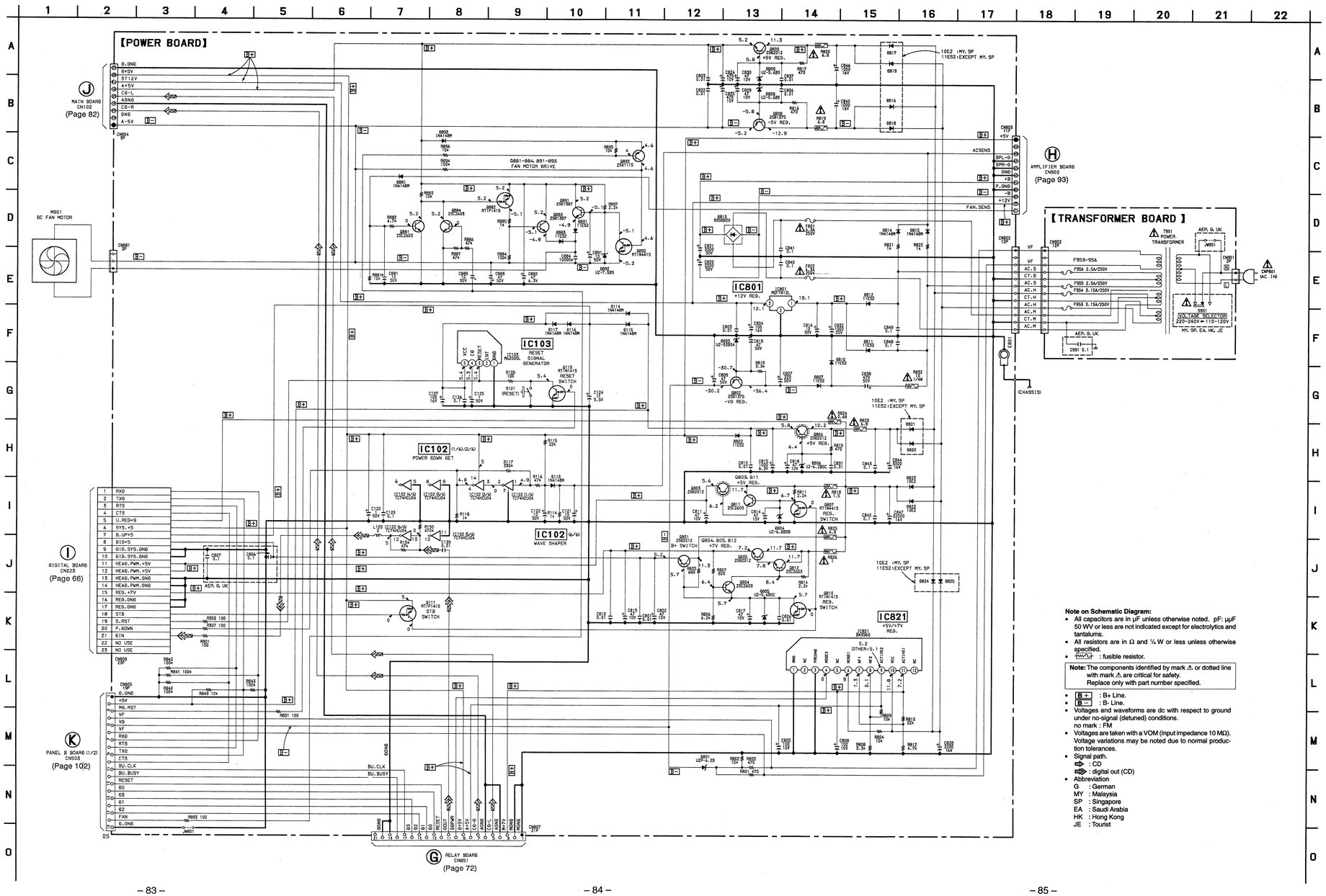
• **Waveform**
❶ IC7001 ⓐ (OSC1)



Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- B− : B− Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ⇨ : PB (MD)
  ⇨ : REC (MD)
  ⇨ : PB (TAPE)
  ⇨ : REC (TAPE)
  ⇨ : CD
  ⇨ : VIDEO/GAME (audio)
- Abbreviation
  G : German

6-16. SCHEMATIC DIAGRAM –POWER SECTION–



Note on Schematic Diagram:

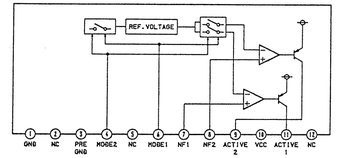
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ : B+ Line.
- B− : B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : CD
  ⇨ : digital out (CD)
- Abbreviation
  G : German
  MY : Malaysia
  SP : Singapore
  EA : Saudi Arabia
  HK : Hong Kong
  JE : Tourist

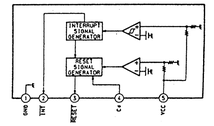
• IC Block Diagram –POWER Section–

IC821 BA3960L

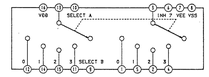


• IC Block Diagrams –MAIN Section–

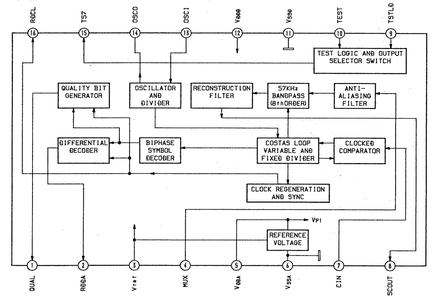
IC103 M62005L



IC701 MC14052BCP

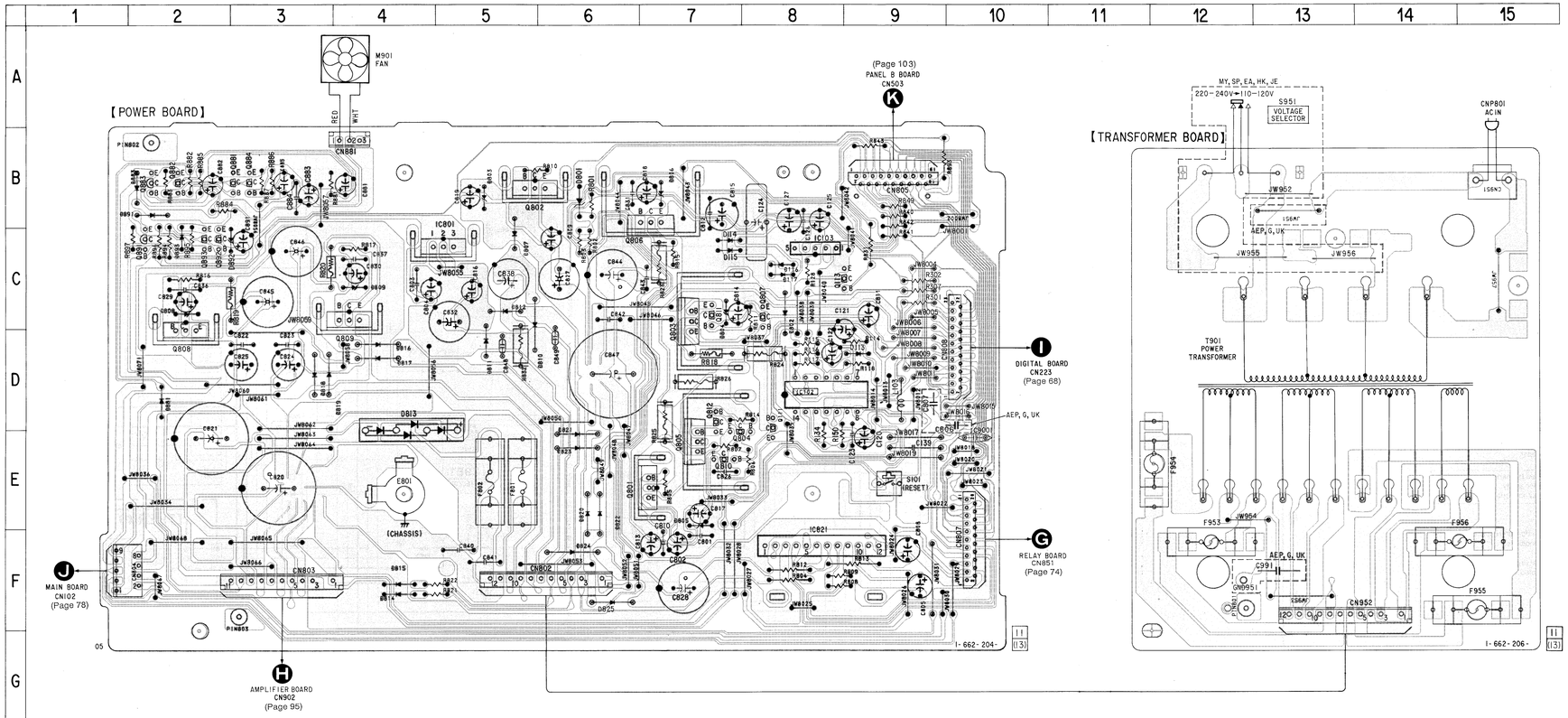


IC7001 SAA6579



6-17. PRINTED WIRING BOARDS –POWER SECTION–

• See page 28 for Circuit Boards Location.



• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D113	D-9	D883	B-2
D114	C-7	D891	B-2
D115	C-7	D892	C-2
D116	C-8	D893	C-2
D117	C-8		
D801	B-6	IC102	D-8
D802	C-8	IC103	C-8
D803	B-5	IC801	C-5
D804	C-7	IC821	F-8
D805	E-7		
D806	B-7	Q111	D-8
D807	C-5	Q113	C-8
D808	C-2	Q801	E-7
D809	C-4	Q802	B-5
D810	D-5	Q803	D-7
D811	D-5	Q804	E-7
D812	C-5	Q805	E-7
D813	D-4	Q806	C-6
D814	F-4	Q807	C-8
D815	F-4	Q808	D-2
D816	D-4	Q809	D-4
D817	D-4	Q810	E-7
D818	D-3	Q811	C-7
D819	D-3	Q812	D-7
D820	E-6	Q881	B-3
D821	E-6	Q882	B-2
D822	E-6	Q883	B-2
D823	E-6	Q884	B-3
D824	F-6	Q891	C-2
D825	F-6	Q892	C-2
D881	D-2	Q893	C-2

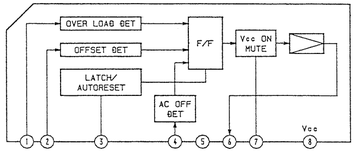
Note on Printed Wiring Board:

- ▭ : parts extracted from the component side.
- ▭ : Pattern from the side which enables seeing.
- Abbreviation
  - G : German
  - MY : Malaysia
  - SP : Singapore
  - EA : Saudi Arabia
  - HK : Hong Kong
  - JE : Tourist

6-18. SCHEMATIC DIAGRAM –POWER AMP SECTION–

• IC Block Diagram

IC981 µPC1237HA

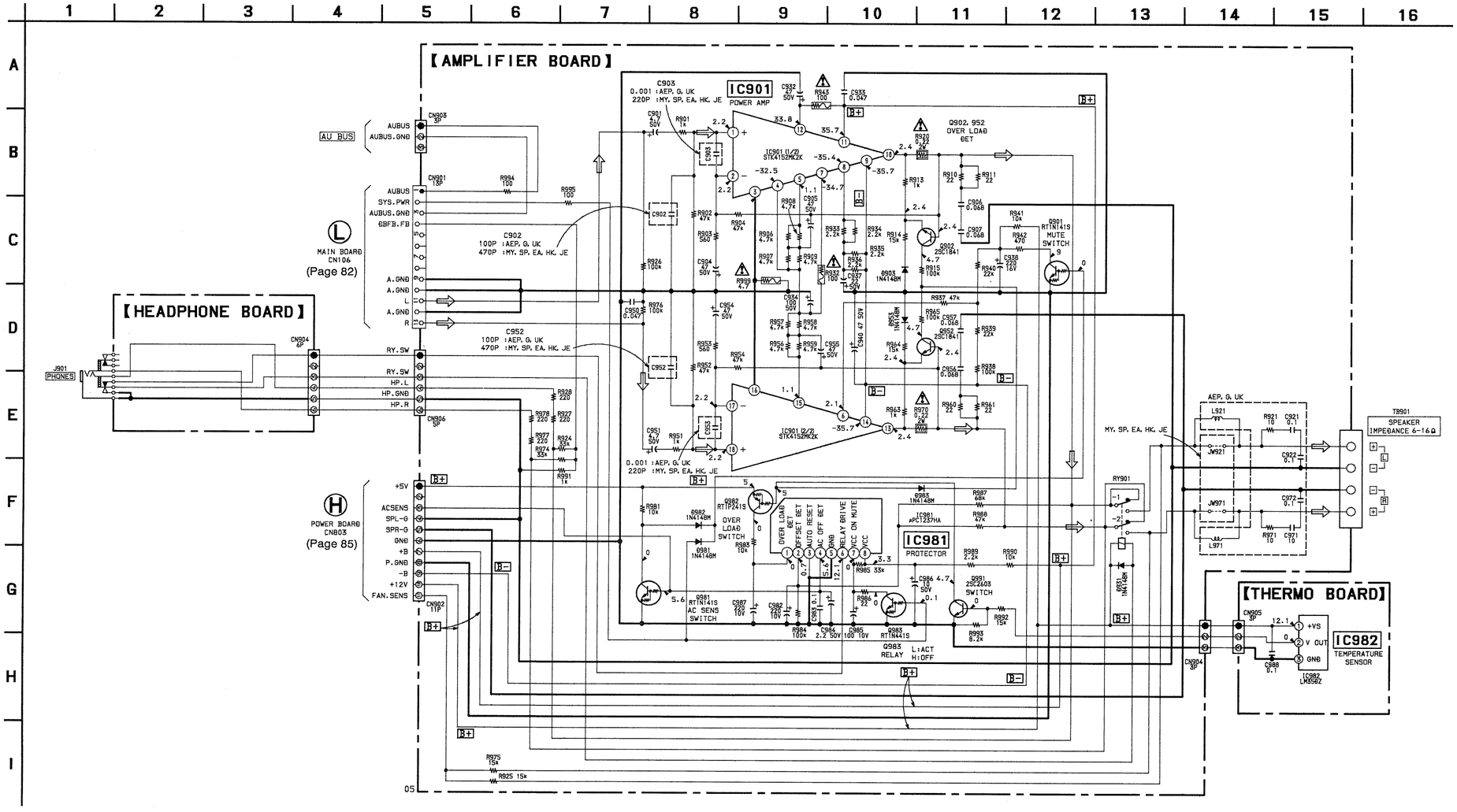


Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- VCC : nonflammable resistor.
- : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

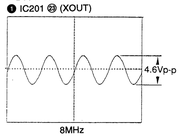
- B+ : B+ Line.
- B− : B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- Abbreviation
  G : German
  MY : Malaysia
  SP : Singapore
  EA : Saudi Arabia
  HK : Hong Kong
  JE : Tourist



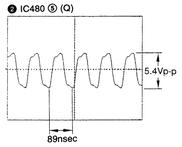
• **Waveforms**

– DIGITAL Section –

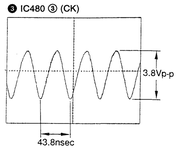
❶ IC201 ㉒ (XOUT)



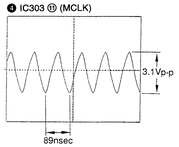
❷ IC480 ⑥ (Q)



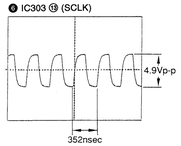
❸ IC480 ③ (CK)



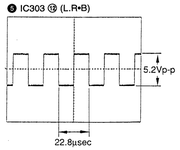
❹ IC303 ⑪ (MCLK)



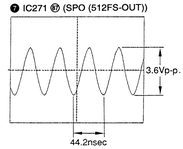
❺ IC303 ⑬ (SCLK)



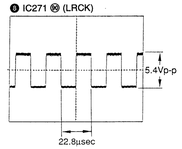
❻ IC303 ⑱ (L.R+B)



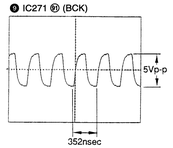
❼ IC271 ㉕ (SPO (512FS-OUT))



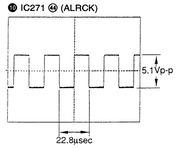
❽ IC271 ㉗ (LRCK)



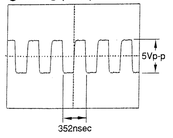
❾ IC271 ㉖ (BCK)



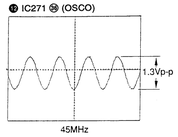
❿ IC271 ㉔ (ALRCK)



⓫ IC271 ㉔ (ABCK)

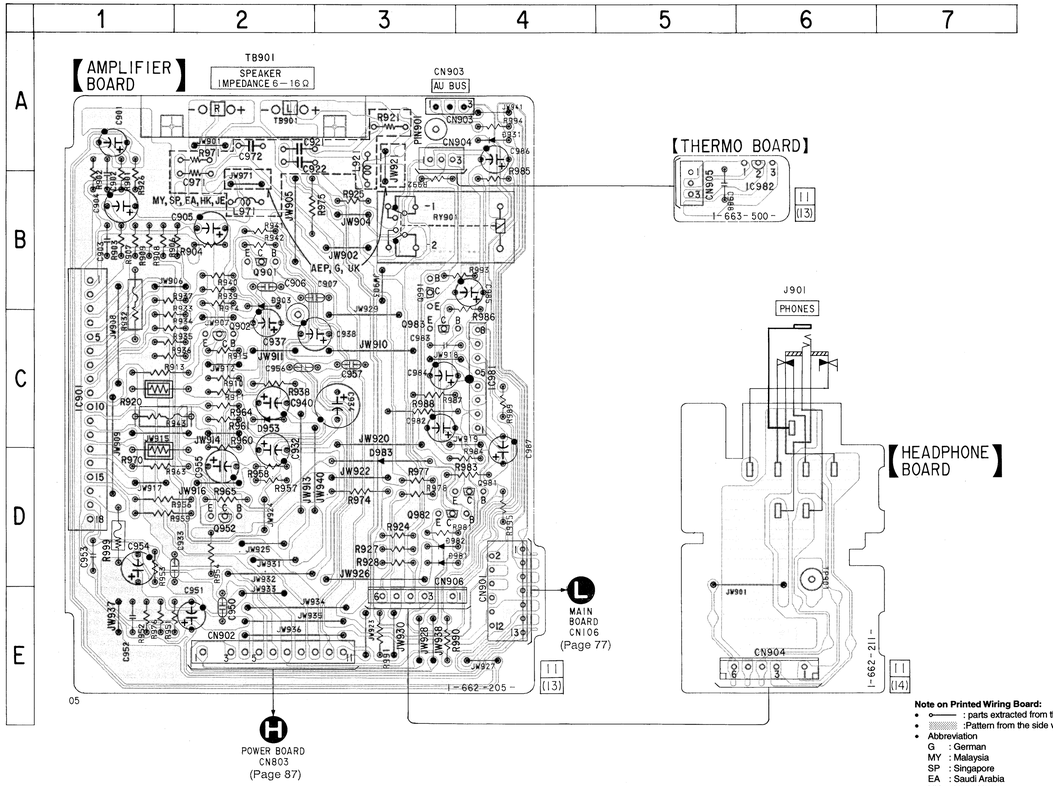


⓬ IC271 ㉘ (OSCO)



6-19. PRINTED WIRING BOARDS –POWER AMP SECTION–

• See page 28 for Circuit Boards Location.



• **Semiconductor Location**

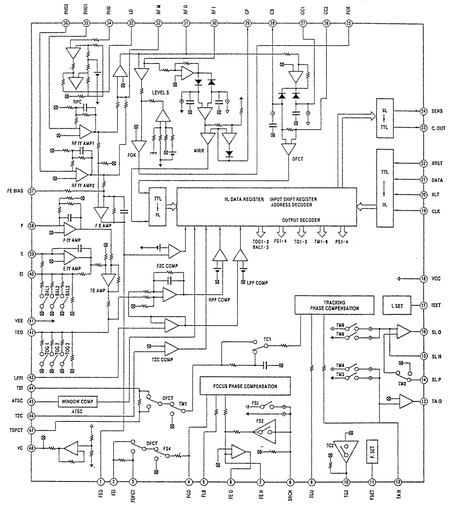
Ref. No.	Location
D903	B-2
D931	A-4
D953	C-2
D981	D-3
D982	D-3
D983	D-3
IC901	C-1
IC981	C-4
IC982	A-6
Q901	B-2
Q902	C-2
Q952	D-2
Q981	D-4
Q982	D-3
Q983	C-3
Q991	B-3

Note on Printed Wiring Board:

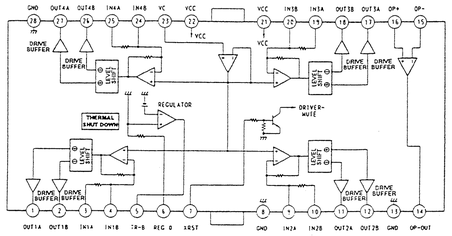
- o—— : parts extracted from the component side.
- ▒▒▒ :Pattern from the side which enables seeing.
- Abbreviation
  - G : German
  - MY : Malaysia
  - SP : Singapore
  - EA : Saudi Arabia
  - HK : Hong Kong
  - JE : Tourist

• **IC Block Diagrams –CD Section–**

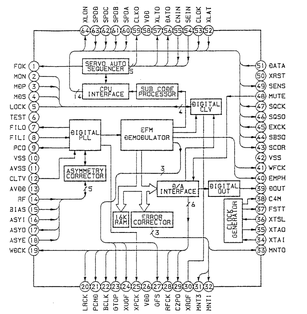
IC101 CXA1782BQ



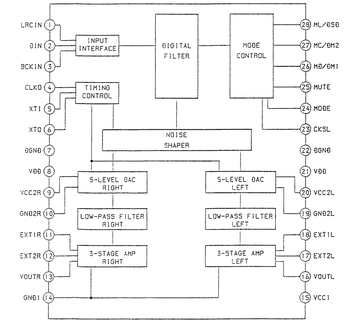
IC102 BA6397FP



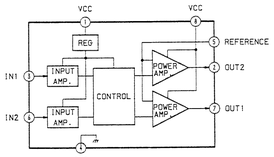
IC103 CXD2507AQ



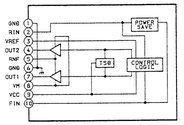
IC104 PCM1710U-B



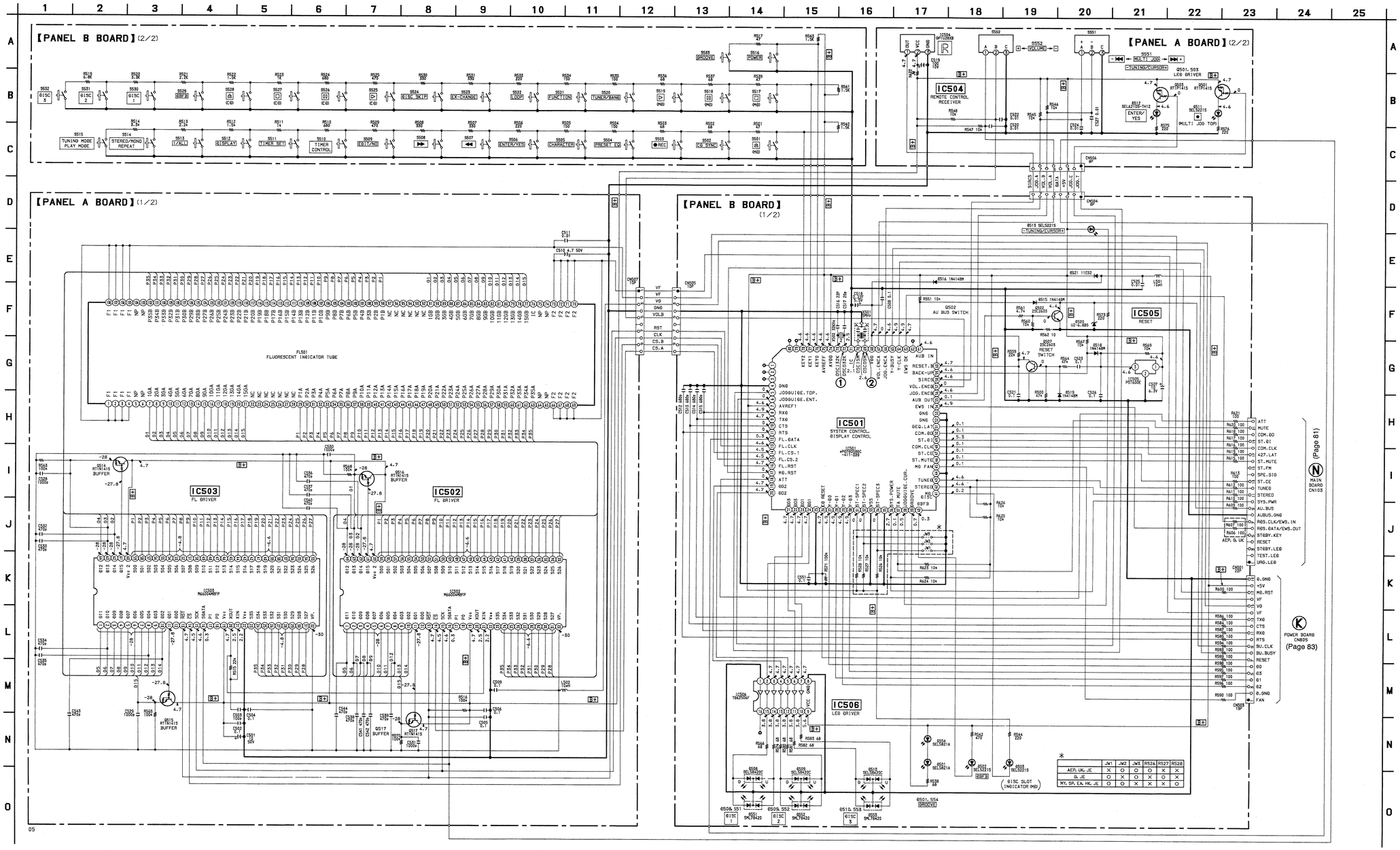
IC1701 M54641L



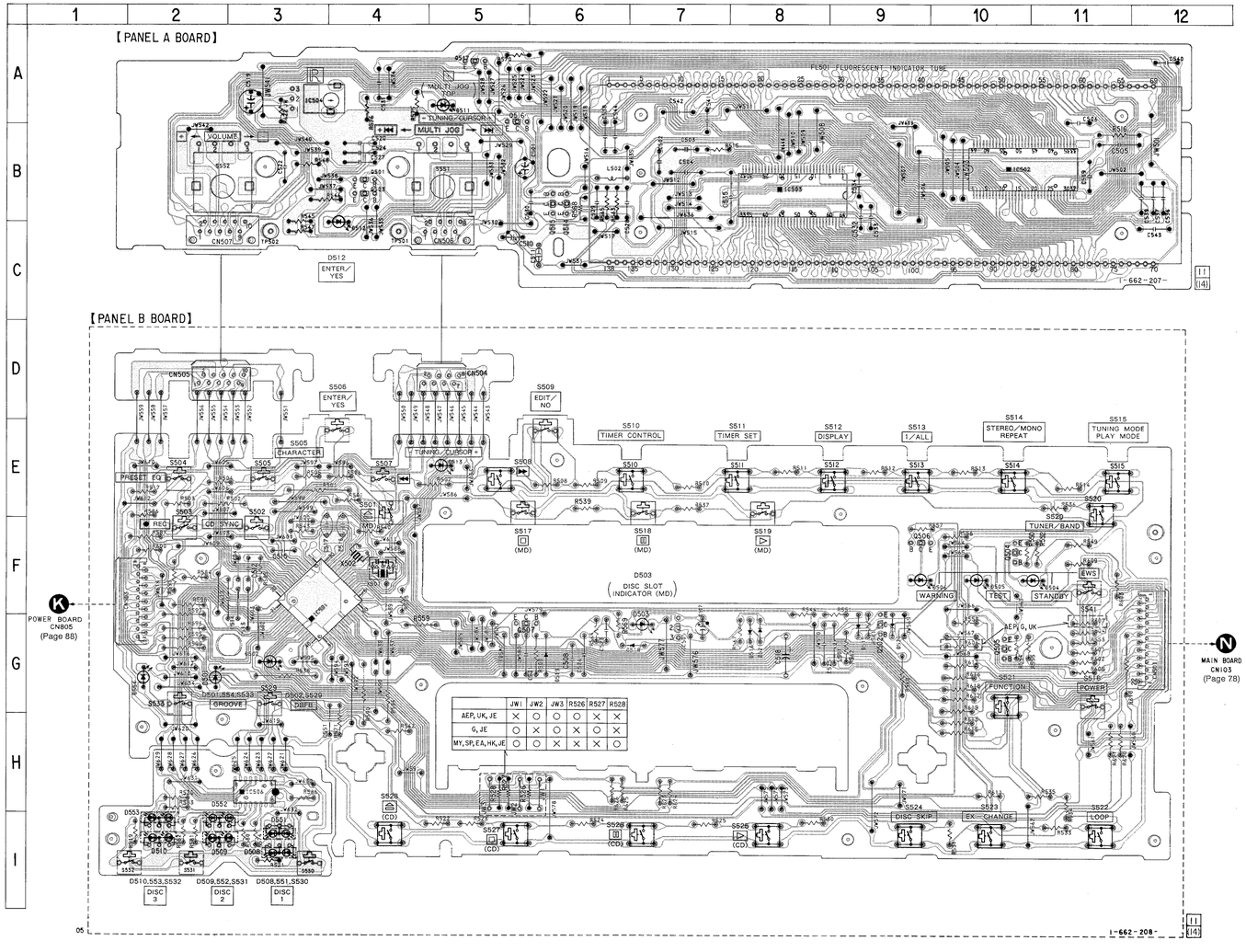
IC1801 BA6286N



6-20. SCHEMATIC DIAGRAM –PANEL SECTION– • See pages 119, 120 for IC Pin Function Description.


【PANEL B BOARD】(2/2)
【PANEL A BOARD】(2/2)
【PANEL A BOARD】(1/2)
【PANEL B BOARD】(1/2)
IC504 REMOTE CONTROL RECEIVER
IC505 RESET
IC501 SYSTEM CONTROL, DISPLAY CONTROL
IC503 FL DRIVER
IC502 FL DRIVER
IC506 LED DRIVER
FL501 FLUORESCENT INDICATOR TUBE
(Page 81)
(Page 83)
• Waveforms
1 IC501 (OSCO32K)
32kHz
5Vp-p
2 IC501 (OSCO5M)
5MHz
5Vp-p
Note on Schematic Diagram:
• All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
• All resistors are in Ω and ¼ W or less unless otherwise specified.
• △ : internal component.
• ▭ : panel designation.
• B+ : B+ Line.
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : All the FL LED are light up. (Test mode)
• Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
• Waveforms are taken with a oscilloscope.
Voltage variations may be noted due to normal production tolerances.
• Circled numbers refer to waveforms.
• Abbreviation
G : German
MY : Malaysia
SP : Singapore
EA : Saudi Arabia
HK : Hong Kong
JE : Tourist

6-21. PRINTED WIRING BOARDS –PANEL SECTION– • See page 28 for Circuit Boards Location.



• Semiconductor Location

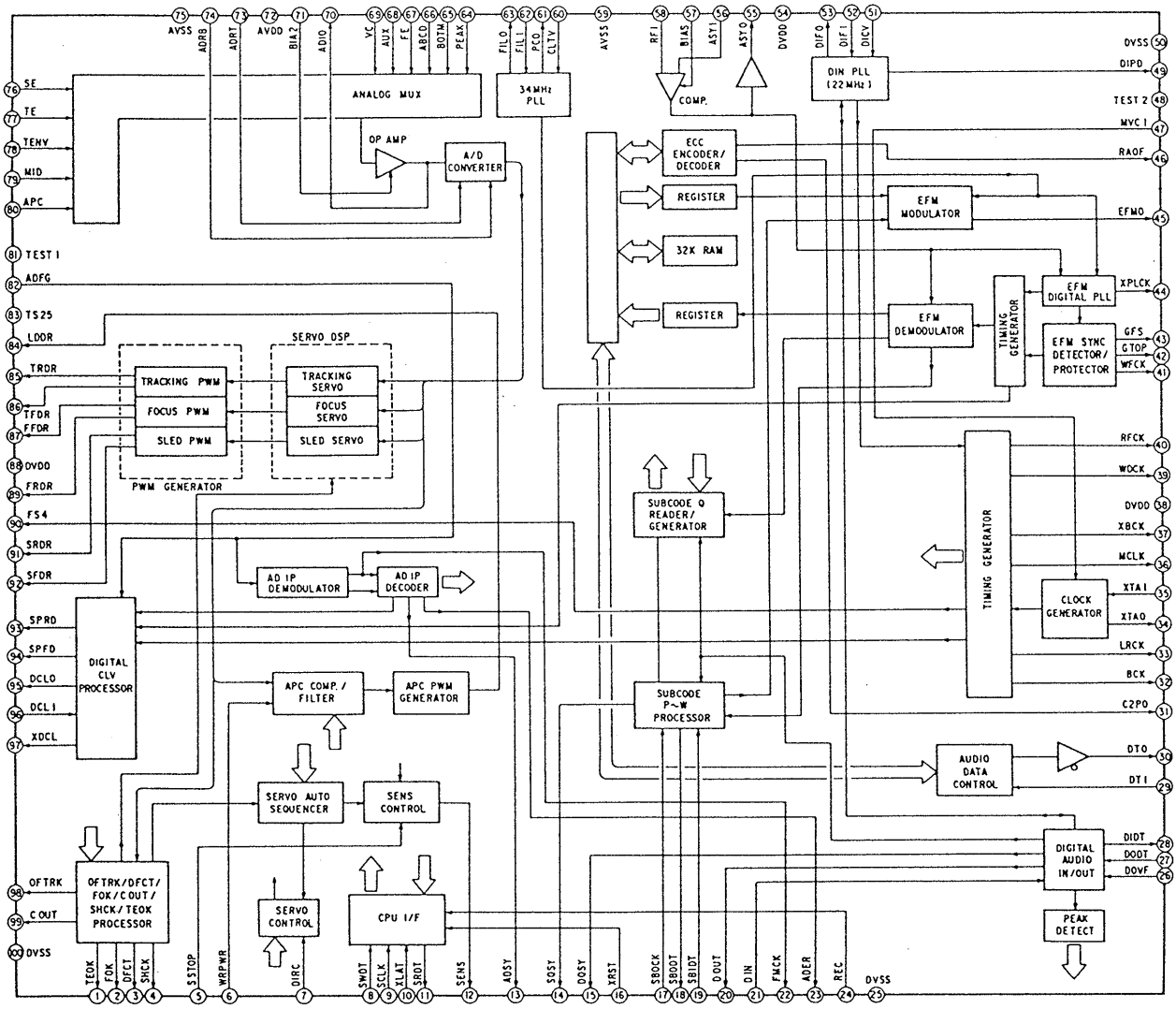
Ref. No.	Location	Ref. No.	Location
D501	G-2	D554	G-2
D502	G-3		
D503	G-7	IC501	F-3
D508	I-3	IC502	B-10
D509	I-2	IC503	B-8
D510	I-2	IC504	A-3
D511	A-5	IC505	G-7
D512	C-4	IC506	H-3
D513	E-5		
D515	G-9	Q501	B-4
D516	G-8	Q502	G-9
D518	G-7	Q503	B-4
D519	G-6	Q507	G-5
D520	G-9	Q514	B-6
D521	G-8	Q515	B-6
D551	I-3	Q516	A-5
D552	I-2	Q517	A-5
D553	I-2		

Note on Printed Wiring Board:

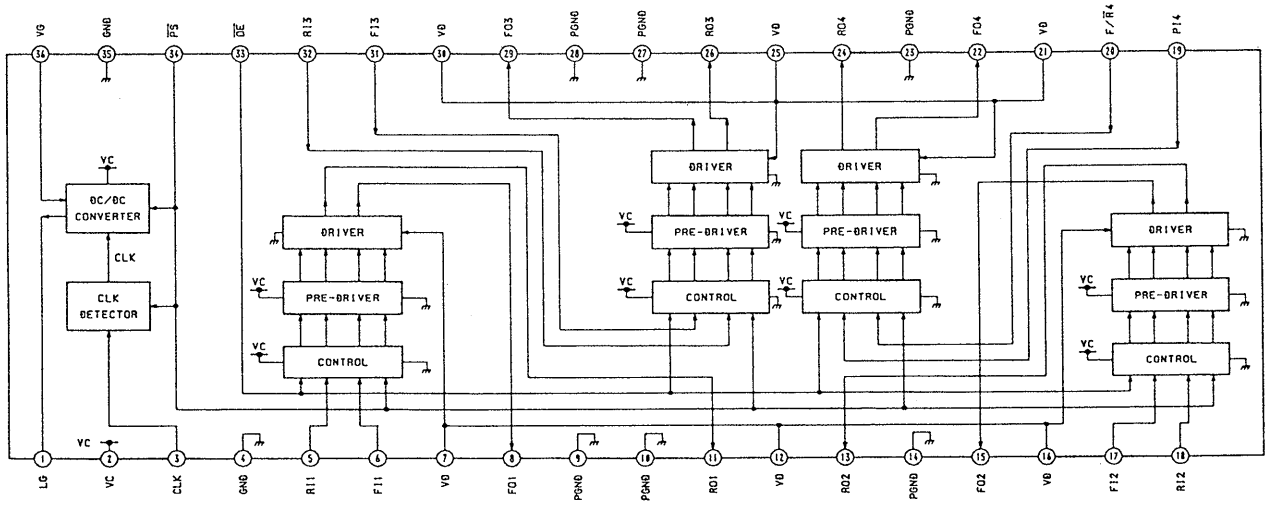
- ○——— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- △ : internal component.
- ▨ :Pattern from the side which enables seeing.
- Abbreviation
  - G : German
  - MY : Malaysia
  - SP : Singapore
  - EA : Saudi Arabia
  - HK : Hong Kong
  - JE : Tourist

• IC Block Diagrams –MD Section–

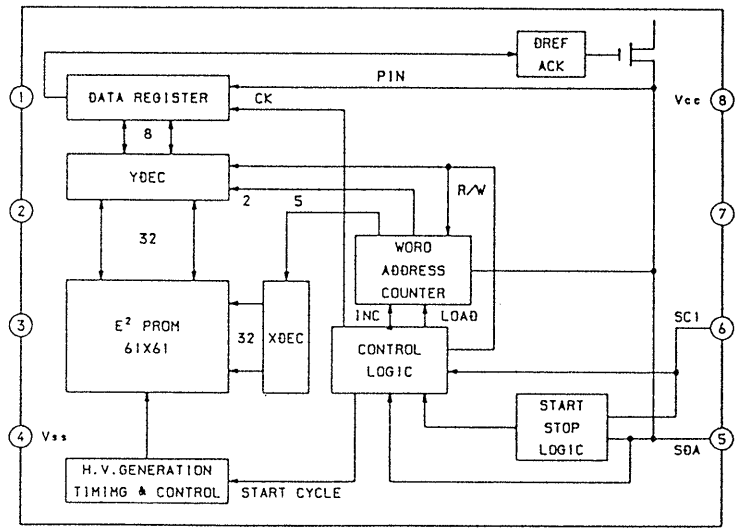
IC121 CXD2535BR



IC151 MPC17A38VMEL

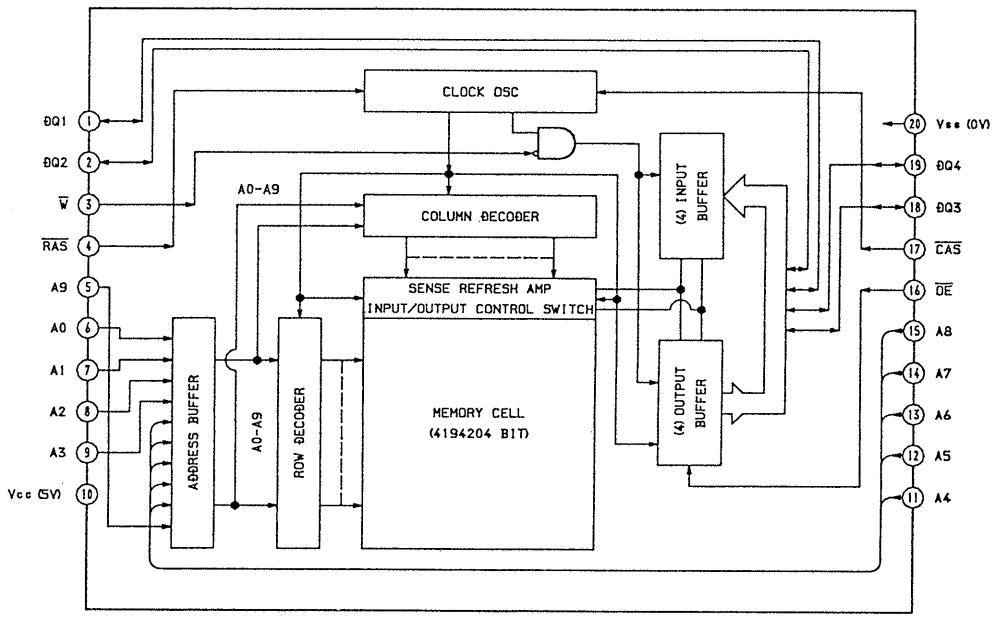


IC171 X24C01S

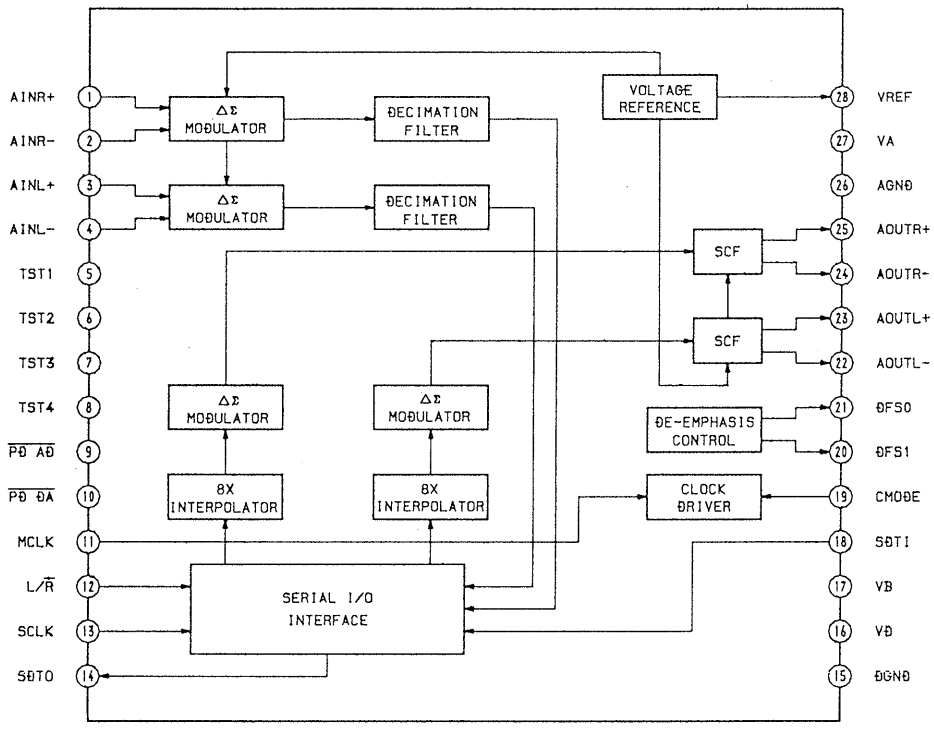


• IC Block Diagrams –DIGITAL Section–

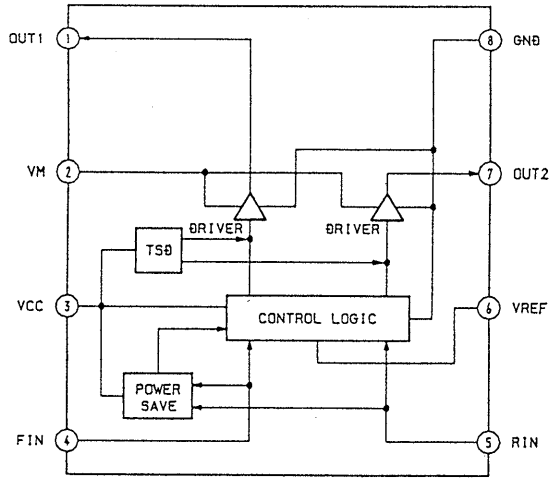
IC272 M5M44400BJ-7L2



IC303 AK4506-VS-E1



IC431 BA6287F



6-22. IC PIN FUNCTION DESCRIPTION

BD (MD) Board IC101 CXA1981AR (RF Amplifier)

Pin No.	Pin Name	I/O	Function
1	VC	O	Middle point voltage (+2.5V) generation
2	A	I	Signal input from the optical block detector.
3	B	I	
4	C	I	
5	D	I	
6	E	I	
7	F	I	
8	FI	I	F operation amplifier input
9	FO	O	F operation amplifier output
10	PD	I	Front monitor. Connected to the photo diode.
11	APCREF	I	Input for laser power setting
12	TEMPI	I	Connected to the temperature sensor.
13	GND	—	Ground
14	AAPC	O	APC LD amplifier output
15	DAPC	O	Not used (Open).
16	TEMPR	O	Output for a temperature sensor reference voltage
17	XRST	I	Reset signal input from the MD system control (IC201). When reset:“L”.
18	SWDT	I	Writing data signal input from the MD system control (IC201).
19	SCLK	I	Clock signal input from the MD system control (IC201).
20	XLAT	I	Latch signal input from the MD system control (IC201).
21	VREF	O	Reference voltage output. Not used (Open).
22	TENV	O	Not used (Open).
23	THLD	I	Not used (Connected to VC).
24	VCC	—	Power supply (+5V)
25	TFIL	I	Not used (Connected to VC).
26	TE	O	Tracking error signal output to the CXD2535BR (IC121).
27	TLB	I	Add signal input to tracking error.
28	CSLED	I	Sled error LPF
29	SE	O	Sled error signal output to the CXD2535BR (IC121).
30	ADFM	O	ADIP FM signal output
31	ADIN	I	Receives a ADIP FM signal in AC coupling.
32	ADAGC	I	Connected to the external capacitor for ADIP AGC.
33	ADFG	O	ADIP duplex FM signal output to the CXD2535BR (IC121). (22.05 kHz ±1 kHz)
34	AUX	O	Auxiliary signal output to the CXD2535BR (IC121).
35	FE	O	Focus error signal output to the CXD2535BR (IC121).
36	FLB	I	Not used (Open).
37	ABCD	O	Light amount signal output to the CXD2535BR (IC121).
38	BOTM	O	Bottom hold signal of light amount signal output to the CXD2535BR (IC121).
39	PEAK	O	Peak hold signal of light amount signal output to the CXD2535BR (IC121).
40	RFAGC	I	Connected to the external capacitor for RF AGC circuit.
41	RF	O	Playback EFM RF signal output to the CXD2535BR (IC121).
42	ISET	I	Sets the internal circuit constant. 22 kHz: BPF center frequency.
43	AGCI	I	Receives a RF signal in AC coupling.
44	RFO	O	RF signal output
45	MORFI	I	Receives a MO RF signal in AC coupling.
46	MORFO	O	MO RF signal output
47	I	I	Signal input from the optical block dictator.
48	J	I	

BD (MD) Board IC121 CXD2535BR
(Digital Signal Processing, Digital Servo Signal Processing, EFM/ACIRC Encorder/Decorder)

Pin No.	Pin Name	I/O	Function
1	FS256	O	11.2896 MHz clock output (MCLK system). Not Used (Open).
2	FOK	O	FOK signal output to the MD system control (IC201). "H" is output when focus is on.
3	DFCT	O	Defect signal ON/OFF select signal output to the CXD2538CR (IC271).
4	SHCK	O	Track jump detect signal output to the MD system control (IC201).
5	SHCKEN	I	Track jump detect enable signal input. Not Used (Connected to ground).
6	WRPWR	I	Laser power select signal input from the MD system control (IC201).
7	DIRC	I	Not used (Connected to DVDD).
8	SWDT	I	Writing data signal input from the MD system control (IC201).
9	SCLK	I	Serial clock signal input from the MD system control (IC201).
10	XLAT	I	Serial latch signal input from the MD system control (IC201).
11	SRDT	O	Reading data signal output to the MD system control (IC201).
12	SENS	O (3)	Internal status (SENSE) output to the MD system control (IC201).
13	ADSY	O	ADIP sync signal output (Open)
14	SQSY	O	Subcode Q sync (SCOR) output to the MD system control (IC201). "L" is output every 13.3 msec. Almost all "H" is output.
15	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output to the MD system control (IC201). "L" is output every 13.3 msec. Almost all "H" is output.
16	XRST	I	Reset signal input from the MD system control (IC201). When reset:''L".
17	TEST4	I	Test pin (Connected to ground).
18	CLVSCK	O	Not used (Open).
19	TEST5	I	Test pin (Connected to ground).
20	DOUT	O	Digital audio signal output (Optical output). Not Used (Open).
21	DIN	I	Digital audio signal input (Optical input).
22	FMCK	O	ADIP FM demodulation clock signal output (Open)
23	ADER	O	ADIP CRC flag output. "H": Error (Open)
24	REC	I	Recording/Playback select signal input from the MD system control (IC201). Recording: "H", Playback: "L".
25	DVSS	—	GND (Digital system)
26	DOVF	I	Digital audio output parity flag input (Connected to ground)
27	DODT	I	Digital audio output 16-bit data input from the CXD2536CR (IC271).
28	DIDT	O	Digital audio input 16-bit data output to the CXD2536CR (IC271).
29	DTI	I	Recording audio data signal input from the CXD2536CR (IC271).
30	DTO	O (3)	Playback audio signal output to the CXD2536CR (IC271).
31	C2PO	O	C2PO signal output (output indicating data error status) to the CXD2536CR (IC271). Playback: C2PO ("H"), Digital recording: D. In Vflag, Analog recording: "L".
32	BCK	O	Bit clock signal output to the CXD2536CR (IC271). (2.8224 MHz) (MCLK system)
33	LRCK	O	L/R clock signal output to the CXD2536CR (IC271). (44.1 KHz) (MCLK system)
34	XTAO	O	System clock (512Fs=22.5792 MHz) signal output
35	XTAI	I	System clock (512Fs=22.5792 MHz) signal input from the CXD2536CR (IC271). (Open)
36	MCLK	O	MCLK clock (22.5792 MHz) signal output (Open)
37	XBCK	O	Inverted output of Pin 32 (BCK) (Open)
38	DVDD	—	Power supply pin (+5V) (Digital system)
39	WDCK	O	WDCK clock (88.2 kHz) signal output (MCLK system) (Open)
40	RFCK	O	RFCK clock (7.35 kHz) signal output (MCLK system) (Open)

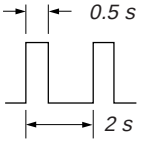
Pin No.	Pin Name	I/O	Function
41	WFCK	O	WFCK clock (7.35 kHz) signal output (Playback: EFM decoder PLL, Recording: EFM encoder PLL) (Open)
42	GTOP	O	"H": Playback EFM frame sync protect window opens. Not used (Open).
43	GFS	O	"H": Playback EFM frame sync is synchronized with interpolation protect timing. Not used (Open).
44	XPLCK	O	EFM decoder PLL clock output (98Fs=4.3218 MHz) Falling edge are synchronized with EFM signal edge (Open)
45	EFMO	O	EFM signal output (Recording)
46	RAOF	O	Overflow detection signal output of the internal RAM (Decoder monitor output). "H" is output when the disc rotation exceeds ± 4F jitter margin during playback. Not used (Open).
47	MVCI	I	Digital In PLL oscillation input. Not used (Connected to GND).
48	TEST2	I	Test pin (Connected to GND).
49	DIPD	O (3)	Digital In PLL phase comparison output. When internal VCO: (frequency: Low→ "H"), external VCO: (frequency: Low→ "L").
50	DVSS	—	GND (Digital system)
51	DICV	I (A)	Internal VCO control voltage input for the digital In PLL.
52	DIFI	I (A)	Filter input when the internal VCO for the digital In PLL is used.
53	DIFO	O (A)	Filter output when the internal VCO for the digital In PLL is used.
54	AVDD	—	Power supply (+5V) (Analog)
55	ASYO	O	Playback EFM full swing output (L=VSS, H=VDD)
56	ASYI	I (A)	Playback EFM asymmetry comparator voltage input
57	BIAS	I (A)	Playback EFM asymmetry circuit constant-current input
58	RFI	I (A)	Playback EFM RF signal input from the CXA1981AR (IC101).
59	AVSS	—	GND (Analog)
60	CLTV	I (A)	VCO control voltage input for the decoder PLL master clock PLL.
61	PCO	O (3)	Phase comparison output for the decoder PLL master clock PLL.
62	FILI	I (A)	Filter input for the decoder PLL master clock PLL.
63	FILO	O (3)	Filter output for the decoder PLL master clock PLL.
64	PEAK	I (A)	Peak hold signal of light amount signal input from the CXA1981AR (IC101).
65	BOTM	I (A)	Bottom hold signal of light amount signal input from the CXA1981AR (IC101).
66	ABCD	I (A)	Light amount signal input from the CXA1981AR (IC101).
67	FE	I (A)	Focus error signal input from the CXA1981AR (IC101).
68	AUXI	I (A)	Auxiliary signal input from the CXA1981AR (IC101).
69	VC	I (A)	Middle point voltage (+2.5V) input from the CXA1981AR (IC101).
70	ADIO	O (A)	Monitor output of A/D converter input signal. Not used (Open).
71	TEST3	I (A)	Test pin (Connected to ground.)
72	AVDD	—	Power supply pin (+5V) (Analog)
73	ADRT	I (A)	A/D converter operational range upper limit voltage input (Connected to AVDD.)
74	ADRB	I (A)	A/D converter operational range lower limit voltage input (Connected to ground.)
75	AVSS	—	GND (Analog)
76	SE	I (A)	Sled error signal input from the CXA1981AR (IC101).
77	TE	I (A)	Tracking error signal input from the CXA1981AR (IC101).
78	AUX2	I (A)	Auxiliary input pin 2. Not used (Connected to ground).
79	DCHG	I (A)	Connected to GND.
80	APC	I (A)	Laser APC input . Not used (Connected to ground).
81	TEST1	I	Test pin (Fixed at "L" in this unit.)
82	ADFG	I	ADIP duplex FM signal input from the CXA1981AR (IC101). (22.05 kHz ±1 kHz) (TTL Schmidt input)

Pin No.	Pin Name	I/O	Function
83	TS25	I	Test pin (Connected to ground).
84	LDDR	O	Laser APC signal output
85	TRDR	O	Tracking servo drive signal output (–)
86	TFDR	O	Tracking servo drive signal output (+)
87	FFDR	O	Focus servo drive signal output (+)
88	DVDD	—	Power supply (+5V) (Digital system)
89	FRDR	O	Focus servo drive signal output (–)
90	FS4	O	176.4 kHz clock signal output (MCLK system)
91	SRDR	O	Sled servo drive signal output (–)
92	SFDR	O	Sled servo drive signal output (+)
93	SPRD	O	Spindle servo drive signal output (–)
94	SPFD	O	Spindle servo drive signal output (+)
95	DCLO	O	Usually not used (Open).
96	DCLI	I	Usually not used (Connected to DVDD).
97	XDCL	—	Usually not used (Open).
98	OFTRK	O	Off track signal output
99	COUT	O	Traverse count signal output
100	DVSS	—	GND (Digital system)

* I/O (3) stands for 3-state output. (A) stands for analog output.

Digital Board IC201 M37610MD-068FP (System Control, Mechanism Controller (MD))

Pin No.	Pin Name	I/O	Function
1	C, SET 1	I	Emphasis ON/OFF select. "H": ON. It is inverted by the emphasis control Q201 of IC303 and the inverted signal is input to the IC303.
2	C, SET 0	I	Not used (Connected to ground).
3	KEY 3	I	
4	KEY 2	I	Not used (Connected to VREF).
5	KEY 1	I	
6	KEY0	I	
7	—	I	Not used (Fixed at "L").
8	XINT	I	Interrupt status input from the CXA2536CR (IC271).
9	SENS	I	Internal status (SENSE) input from the CXA2535BR (IC121).
10	SHCK	I	Track jump signal input from the CXA2536CR (IC271).
11	AUBK	I	Not used (Fixed at "L").
12	S/A	O	Not used (Open).
13	BEEP SW	I	Not used (Connected to ground).
14	$\overline{\text{REC}}$/OTHER	O	When recording: "L", Other: "H"
15	BEEP	O	Not used (Open).
16	F. BIAS/C2	I	Not used (Connected to ground).
17	GND (CNVSS)	—	Ground
18	SYSTEM RST	I	System reset signal input "L" is input for several hundreds msec. after the power is turned on, and changed to "H".
19	XIN T	I	Not used (Connected to ground).
20	XOUT T	O	
21	GND	—	Ground
22	XIN	I	Clock input (8 MHz)
23	XOUT	O	Clock output (8 MHz)
24	+5V	—	Power supply (+5 V)
25	STB	O	Strobe signal output to the power supply circuit. The power supply ON: "H", Stand by: "L".
26	MIC SW	I	Not used (Connected to ground).
27	MIC SW	I	
28	BUS OUT	O	Not used (Open).
29	—	O	Not used (Connected to ground).
30	LED2	O	
31	LED1	O	Not used (Fixed at "L").
32	LED0	O	Not used (Open).
33	C1	I	Not used (Connected to ground).
34	ADER	I	
35	NC	I	Not used (Fixed at "L").
36	MASTER/SLAVE	I	Not used (Connected to ground).
37	JOG 1	I	
38	JOG 0	I	
39	SDA	I/O	Data signal input/output with the backup memory (IC171).
40	SCL	O	Clock signal output to the backup memory (IC171).
41	POWER DOWN	I	Power down detect input. Normally, "H" is input.
42	REMCOM	I	Not used (Fixed at "H").

Pin No.	Pin Name	I/O	Function
43	ATSY	I	ATP address sync or subcode Q sync (SCOR) from the CXA2535BR (IC121). "L" is input every 13.3 msec. Almost all "H".
44	DQSY	I	Input of U-bit CD format subcode Q sync (SCOR) from the CXA2535BR (IC121). "L" is input every 13.3 msec. Almost all "H".
45	—	O	Not used (Connected to GND).
46	—	O	
47	—	O	
48	—	I	
49	SCLK	O	Clock signal output to the serial bus.
50	SWDT	O	Writing data signal output to the serial bus.
51	SRDT	I	Reading data signal input from the serial bus.
52	—	I	Connected to Pin ⑤①.
53	FLCLK	O	Not used (Open).
54	FLDATA	O	
55	FLCS	O	
56	—	I	Not used (Connected to GND).
57	TEST 0	I	Test pin (Fixed at "L")
58	TEST 1	O	Reset signal output to the CXA2536CR (IC271).
59	—	I	Not used (Connected to GND).
60	—	I	
61	AFAST	I	Not used (Fixed at "L").
62	$\overline{16}$/18	I	16-bit/18-bit select. "L": 16-bit (Fixed at "L")
63	LDON	O	Laser ON/OFF control output. "H": Laser ON.
64	P/GROOVE	I	Not used (Connected to GND).
65	FOK	I	FOK signal input from the CXA2535BR (IC121). "H" is input when focus is on.
66	MON	I	Not used (Pulled down at input). (Fixed at "L".)
67	LOCK	O	Not used (Pulled down at output). (Fixed at "L".)
68	WRPWR	O	Laser power select signal output to the optical block and CXA2535BR (IC121).
69	DIG RST	O	Reset signal output to the CXA1961AR (IC101), CXA2535BR (IC121), and the motor driver (IC151). Reset: "L".
70	DA RST	O	Reset signal output to the A/D, D/A converter (IC303). Reset: "L".
71	SCMD 1	O	Serial command control mode output to the CXA2536CR (IC271).
72	SCMD 0	O	
73	MOD	O	Laser modulation select signal output Playback power:"L", Stop: "H". Recording power: 
74	REC/PB	O	Recording/Playback select signal output to the CXA2535BR (IC121). Recording: "H", Playback: "L".
75	WR/MN	O	Write/Monitor mode select signal output to the CXA2536CR (IC271).
76	SCTX	O	Writing data transmission timing output to the CXA2536CR (IC271). Also serves as the magnetic head ON/OFF output.
77	XLATCH	O	Latch signal output to the serial bus.
78	DF LATCH	O	Latch signal output to the D/A converter. Not used (Fixed at ''H").
79	DF MUTE	O	Not used (Fixed at "L").

Pin No.	Pin Name	I/O	Function
80	AMUTE	O	Line out muting output
81	LDOUT	O	Loading motor (M191) control output *1
82	LDIN	O	
83	REC SW	I	Detect input from the chucking switch (S193). When chucked: “L”.
84	PLAY SW	I	Loading In switch (S192) detect input “L” at a position where the magnetic head lowers. Others: “H”.
85	OUT SW	I	Loading Out switch (S192) detect input “L” at a loading out position. Others: “H”.
86	PROTECT	I	Rec-proof claw detect input from the protect detect switch (S102-1). When protected: “H”.
87	REFLECT	I	Disc reflectance ratio input from the reflect detect switch (S102-2). Low reflectance ratio disc: “H”.
88	LIMIT IN	I	Detect input from the limit switch (S101). Sled limit in: “L”
89	CTS	O	UART data transmission request signal output to the µPD78058GC (IC501).
90	RTS	I	UART data transmission request signal input from the µPD78058GC (IC501).
91	TXD	I	UART data input from the µPD78058GC (IC501)
92	RXD	O	UART data output to the µPD78058GC (IC501)
93	—	O	Not used (Connected to ground).
94	—	O	
95	—	O	
96	—	O	
97	AVSS (AGND)	—	Ground
98	VREF (+5V)	I	Reference voltage input (+5V)
99	TIMER REC/PLAY	I	Not used (Connected to ground).
100	INPUT SELECT	I	

*1 Loading motor control

Operation / Pin	IN	OUT	Brake
LDIN (Pin ㉜)	“H”	“L”	“H”
LDOUT (Pin ㉛)	“L”	“H”	“H”

Digital Board IC271 CXA2536CR (Shock Proof Memory Controller, ATRAC Encoder/Decoder)

Pin No.	Pin Name	I/O	Function
1	VDD	—	Power supply (+5V)
2	SWDT	I	Writing data signal input from the MD system control (IC201).
3	SCK	I	Serial clock signal input from the MD system control (IC201).
4	XLAT	I	Serial latch signal input from the MD system control (IC201).
5	SRDT	O/Z	Reading data signal output to the MD system control (IC201).
6	SENSE	O/Z	Internal status (SENSE) output to the MD system control (IC201).
7	SCMD0	I	Serial command control mode input from the MD system control (IC201).
8	SCMD1	I	
9	XINT	O	Interrupt status output to the MD system control (IC201).
10	RCPB	I	Recording/Playback select input. Not used (Fixed at "L").
11	WRMN	I	Write/Monitor mode select signal input from the MD system control (IC201).
12	TX	I	Writing data transmission timing input from the MD system control (IC201). Also serves as the magnetic head ON/OFF.
13	VSS	—	Ground
14	SICK	I	Chip reservation. Not used (Connected to ground).
15	IDSL	I	
16	XILT	I	
17	XRST	I	Reset signal input from the MD system control (IC201). Reset: "L".
18	TS0	I	Test pin (Connected to GND)
19	TS1	I	
20	TS2	I	
21	TS3	I	
22	EXIR	I	Chip reservation. Not used (Connected to GND).
23	SASL	I	Block selection when single use. "L": ATRAC, "H": RAM controller (Fixed at "L".)
24	SNGLE	I	Normally fixed at "L" and used for ATRAC or RAM controller. Fixed at "H" when single use. (Fixed at "L".)
25	VSS	—	Ground
26	AIRCPB	O	Recording/Playback mode signal output for the ATRAC or external audio block. Not used (Open).
27	XRQ	I/O	XRQ signal input/output of ATRAC I/F. Not used (Open).
28	ADTO	I/O	Decode data signal input/output of ATRAC. Not used (Open).
29	ADTI	I/O	Encode data signal input/output of ATRAC. Not used (Open).
30	XALT	I/O	XALT signal input/output of ATRAC I/F. Not used (Open).
31	ACK	I/O	ACK signal input/output of ATRAC I/F. Not used (Open).
32	AC2	I/O	Error data signal input/output of ATRAC I/F. Not used (Open).
33	LCHST	I/O	Lch Start data signal input/output of ATRAC I/F. Not used (Open).
34	EXE	I/O	EXE signal input/output of ATRAC I/F. Not used (Open).
35	MUTE	I/O	MUTE signal input/output of ATRAC I/F. Not used (Open).
36	OSCO	O	Clock output (45 MHz)
37	OSCI	I	Clock input (45 MHz)
38	VSS	—	Ground
39	ATT	I/O	ATT signal input/output of ATRAC I/F.
40	F86	O	11.6 msec. timing signal output of ATRAC block.
41	DOUT	O	Monitor/Decode audio data signal output to the A/D, D/A converter (IC303).
42	ADIN	I	Recording signal input from the A/D, D/A converter (IC303).

Pin No.	Pin Name	I/O	Function
43	ABCK	O	Bit clock signal output to the A/D, D/A converter (IC303).
44	ALRCK	O	L/R clock signal output to the A/D, D/A converter (IC303).
45	SA2	O	Address signal output. Not used (Open).
46	SA1	O	Address signal output. Not used (Open).
47	SA0	O	
48	A11	O	
49	A10	O	
50	VSS	—	Ground
51	VDD	—	Power supply (+5V)
52	A03	O	Address signal output to the RAM (IC272).
53	A02	O	
54	A01	O	
55	A00	O	
56	A04	O	
57	A05	O	
58	A06	O	
59	A07	O	
60	A08	O	
61	XOE	O	Output enable control signal output to the RAM (IC272).
62	XCAS	O	Column address strobe signal output to the RAM (IC272).
63	VSS	—	Ground
64	XCS	O	Chip select signal output to the RAM (IC272). Not used (Open).
65	A09	O	Address signal output to the RAM (IC272).
66	XRAS	O	Low address strobe signal output to the RAM (IC272).
67	XWE	O	Reading/Writing control signal output to the RAM (IC272).
68	D1	I/O	Data signal input/output with the RAM (IC272).
69	D0	I/O	
70	D2	I/O	
71	D3	I/O	
72	D4	I/O	Data signal input/output. Not used (Open).
73	D5	I/O	
74	D6	I/O	
75	VSS	—	Ground
76	D7	I/O	Data signal input/output. Not used (Open).
77	ERR	I/O	Error (C2PO) data input/output to an external RAM. Not used (Open).
78	EXTC2R	I	External RAM select input for error data writing (“H”:External RAM) (Fixed at “L”)
79	BUSY	O	BUSY signal output for RAM access. Not used (Open).
80	EMP	O	Immediately before EMPTY or FULL of ATRAC data (When DSC=ASC+1:“H”). Not used (Open).
81	FUL	O	Immediately before FULL or EMPTY of ATRAC data (When ASC=DSC+1:“H”). Not used (Open).
82	EQL	O	EMPTY of ATRAC data (When DSC=ASC:“H”) (Open)
83	MDLK	O	Main/Sub of recording/playback data (“H”:Sub linking, “L”:Main.) (Open)
84	CPSY	O	Interpolation sync signal output (Open)
85	CTMD0	O	DSC counter mode output (Open)
86	CTMD1	O	
87	SPO	O	System clock (512Fs=22.5792 MHz) signal output to the CXD2535BR (IC121).

Pin No.	Pin Name	I/O	Function
88	VSS	—	Ground
89	MDSY	O	Main data sync detect signal output (Open)
90	LRCK	I	L/R clock signal input from the CXD2535BR (IC121). (44.1 kHz)
91	BCK	I	Bit clock signal input from the CXD2535BR (IC121). (2.8224 MHz)
92	C2PO	I	C2PO signal input (Indicates data error status) from the CXD2535BR (IC121). Playback: C2PO (“H”), Digital recording: D. In-Vflag, Analog recording: “L”.
93	DATA	I/O	Recording: Recording audio data signal output to the CXD2535BR (IC121). Playback: Playback audio data signal output from the CXD2535BR (IC121).
94	DIDT	I	16-bit data for digital audio input from the CXD2535BR (IC121).
95	DODT	O	16-bit data for digital audio output to the CXD2535BR (IC121).
96	DIRCPB	O	Disc drive, EFM encoder/decoder recording/playback mode output. Not used (Open).
97	MIN	I	Defect ON/OFF select signal input from the CXD2535BR (IC121).
98	SPOSL	I	Input/output select input of Pin ⑧⑨. (“L”: IN, “H”:OUT) (Fixed at “L”)
99	MCK	O	Internal master clock output of the RAM controller. Not used (Open).
100	VSS	—	Ground

Panel B Board IC501 µPD78058GC-411-3B9 (System Control, Display Control)

Pin No.	Pin Name	I/O	Function
1	—	O	Not used (Open).
2	—	O	
3	—	O	
4	GND	—	AD converter ground
5	JOGGUIDE.TOP.	O	JOG LED output
6	JOGGUIDE.ENT.	O	ENTER LED output
7	AVREF1	—	DA converter reference voltage input
8	RXD	I	Communication with the MD mechanism controller. Reception data input.
9	TXD	O	Communication with the MD mechanism controller. Reception data output.
10	CTS	I	Communication with the MD mechanism controller. Transmission request input from the other party.
11	RTS	O	Communication with the MD mechanism controller. Transmission request output.
12	FL.DATA	O	Data output to M66004.
13	FL.CLK	O	Clock output to M66004.
14	FL.CS. 1	O	Chip select 1 of M66004
15	FL.CS. 2	O	Chip select 2 of M66004
16	FL.RST	O	Reset output of M66004
17	MD RST	I/O	Forced reset output to the MD mechanism controller.
18	ATT	O	– 6 dB attenuate control of the MD analog input
19	DG2	O	Green LED output of CD DISC2
20	DO2	O	Orange LED output of CD DISC2
21	DG3	O	Green LED output of CD DISC3
22	DO3	O	Orange LED output of CD DISC3
23	DO1	O	Orange LED output of CD DISC1
24	DG1	O	Green LED output of CD DISC1
25	—	O	Not used (Open).
26	CD RESET	O	Reset output to the CD microprocessor
27	Y-D0	I/O	Communication with the CD microprocessor (Data input/output)
28	Y-D1	I/O	
29	Y-D2	I/O	
30	Y-D3	I/O	
31	ST-SPEC1	I	Destination discrimination port for ST
32	ST-SPEC2	I	
33	VSS	—	Ground
34	ST-SPEC3	I	Destination discrimination port for ST
35	—	I	Not used (Connected to ground).
36	SYS.POWER	O	Power control output port
37	TA MUTE	O	TA mute output
38	JOGGUIDE.CUR.	O	Cursor LED output
39	GROOVE	O	GROOVE LED output
40	DBFB	O	DBFB LED output
41	MD DISC	O	MD DISC LED output
42	STEREO	I	ST STEREO input
43	TUNED	I	ST TUNED input
44	—	I	Not used (Connected to ground).

Pin No.	Pin Name	I/O	Function
45	MD FAN	O	Air-cooling fan control output
46	ST.MUTE	O	ST MUTE output
47	ST CE	O	CE output to LC72130
48	COM CLK	O	CLOCK output to the LC72130.
49	ST DI	I	Data input from the LC72130.
50	COM DO	O	Data output to the LC72130.
51	GEQ-LAT	O	Latch output to the M62427.
52	GND	I	Not used (Connected to ground).
53	GND	I	
54	RDS. DATA	I	Data input from the SAA6579
55	AUB OUT	O	Audio bus output
56	JOG.ENCB	I	JOG B pin input
57	VOL.ENCB	I	VOL B pin input
58	SIRCS	I	Remote control input
59	BACK-UP	I	AC off detect input
60	RESET.B	I	Reset input
61	AUB IN	I	AU bus input
62	—	O	Not used (Open).
63	RDS. CLK	I/O	CLOCK input from the SAA6579
64	Y-CLK	I/O	Communication with the CD microprocessor (Clock input/output)
65	Y-BUSY	I/O	Communication with the CD microprocessor (Busy input/output)
66	JOG.ENCA	I	JOG A pin input
67	VOL.ENCA	I	VOL A pin input
68	VDD	—	Power supply (+5V)
69	OSCO5M	—	Main clock. 5 MHz (ceramic)
70	OSCI5M	—	
71	IC	—	Connected to GND.
72	OSCO32K	—	Subclock. 32.768 kHz (crystal)
73	OSCI32K	—	
74	AVDD	—	Analog power supply of the AD converter 5V
75	AVREFF	—	Reference voltage input of the AD converter 5V
76	KEY0	I	Key input (for AD use)
77	KEY1	I	
78	KEY2	I	
79	—	O	Not used (Open).
80	—	O	

Relay Board IC851 µPD78055GC-055-3B9 (CD Mechanism Controller)

Pin No.	Pin Name	I/O	Function
1	$\overline{\text{BDRST}}$	O	BD reset output
2	$\overline{\text{A MUTE}}$	O	Muting ON/OFF output. Not used (Open). Mute
3	FOCUSSW	O	Focus gain select output. Normal Down
4	AVSS	—	Ground potential of the A/D converter (Connected to VSS.)
5	$\overline{\text{DRVRST}}$	O	M66004 reset output. Not used (Open).
6	—	O	Not used (Open).
7	AVREF1	I	Reference voltage input of the D/A converter
8	GND	I	Not used (Connected to ground).
9	DRV DAT	O	M66004 data output. Not used (Open).
10	DRV CLK	O	M66004 clock output. Not used (Open).
11	SUBQ	I	Subcode Q serial input from the CXD2507.
12	—	O	Not used (Open).
13	SQCLK	O	Subcode Q reading clock output to the CXD2507.
14	PRGL	O	Latch pulse output to the PCM1710.
15	XLT	O	Latch pulse output to the CXD2507 and PCM1782.
16	SENSE	I	Various status input from the CXD2507 and PCM1782.
17	DATA	O	Serial data output to the CXD2507 and PCM1782.
18	CLK	O	Serial clock output to the CXD2507 and PCM1782.
19	—	I	Not used (Open).
20	—	I	
21	—	I	
22	—	I	
23	—	I	
24	—	I	
25	—	I	
26	—	I	
27	—	I	
28	—	I	
29	—	I	
30	—	I	
31	—	I	
32	—	I	
33	VSS	—	Ground
34	JOG0	I	JOG0 input. Not used (Connected to ground).
35	JOG1	I	JOG1 input. Not used (Connected to ground).
36	BUSD0	I/O	Y-BUS data 0
37	BUSD1	I/O	Y-BUS data 1
38	BUSD2	I/O	Y-BUS data 2
39	BUSD3	I/O	Y-BUS data 3
40	ENCORDE0	I	Disc tray address detect encoder input 0
41	ENCORDE1	I	Disc tray address detect encoder input 1

Pin No.	Pin Name	I/O	Function
42	ENCORDE2	I	Disc tray address detect encoder input 2
43	AFADJ	I	Not used (Fixed at “H”).
44	TBL-SENSE	I	Table address detect sensor input
45	DSC-SENSE	I	Disc present/absent sensor input. Absent ↑ Present
46	OUTSW	I	Disc tray open completion input. Open completion ↑ NOT
47	PWMSW	I	Not used (Connected to ground).
48	TBL-L	O	Table rotation output
49	TBL-R	O	
50	LD IN	O	Disc tray loading signal output
51	LD OUT	O	
52	—	I	Not used (Connected to ground).
53	—	I	
54	—	I	
55	—	I	
56	—	I	
57	—	I	
58	—	I	
59	—	I	
60	RESET	I	System reset input
61	BUSCLK	I	Y-BUS clock
62	BUSCLK	I/O	
63	$\overline{\text{BUSBSY}}$	I/O	Y-BUS busy
64	SCOR	I	Subcode sync S0, S1 detect input NOT ↑↓ S0, S1 NOT
65	—	I	Not used (Connected to ground)
66	—	I	
67	—	I	Not used (Connected to ground).
68	VDD	—	Power supply (+5V)
69	OSCO	—	Main system clock oscillation crystal connection (5 MHz)
70	OSCI	I	
71	IC	—	Directly connected to VSS.
72	—	—	Not used (Open).
73	ADJ	I	Test mode input. ADJ mode ↑ NORMAL
74	AVDD	—	A/D converter analog power supply. Connected to VDD.
75	AVREF0	I	Reference voltage input of the A/D converter
76	KEY0	I	3.3k pull-up (Key data A/D input 0)
77	KEY1	I	3.3k pull-up (Key data A/D input 1)
78	KEY2	I	3.3k pull-up (Key data A/D input 2)
79	KEY3	I	3.3k pull-up (Key data A/D input 3)
80	$\overline{\text{BDPWR}}$	O	BD power supply ON/OFF output ON ↑ OFF

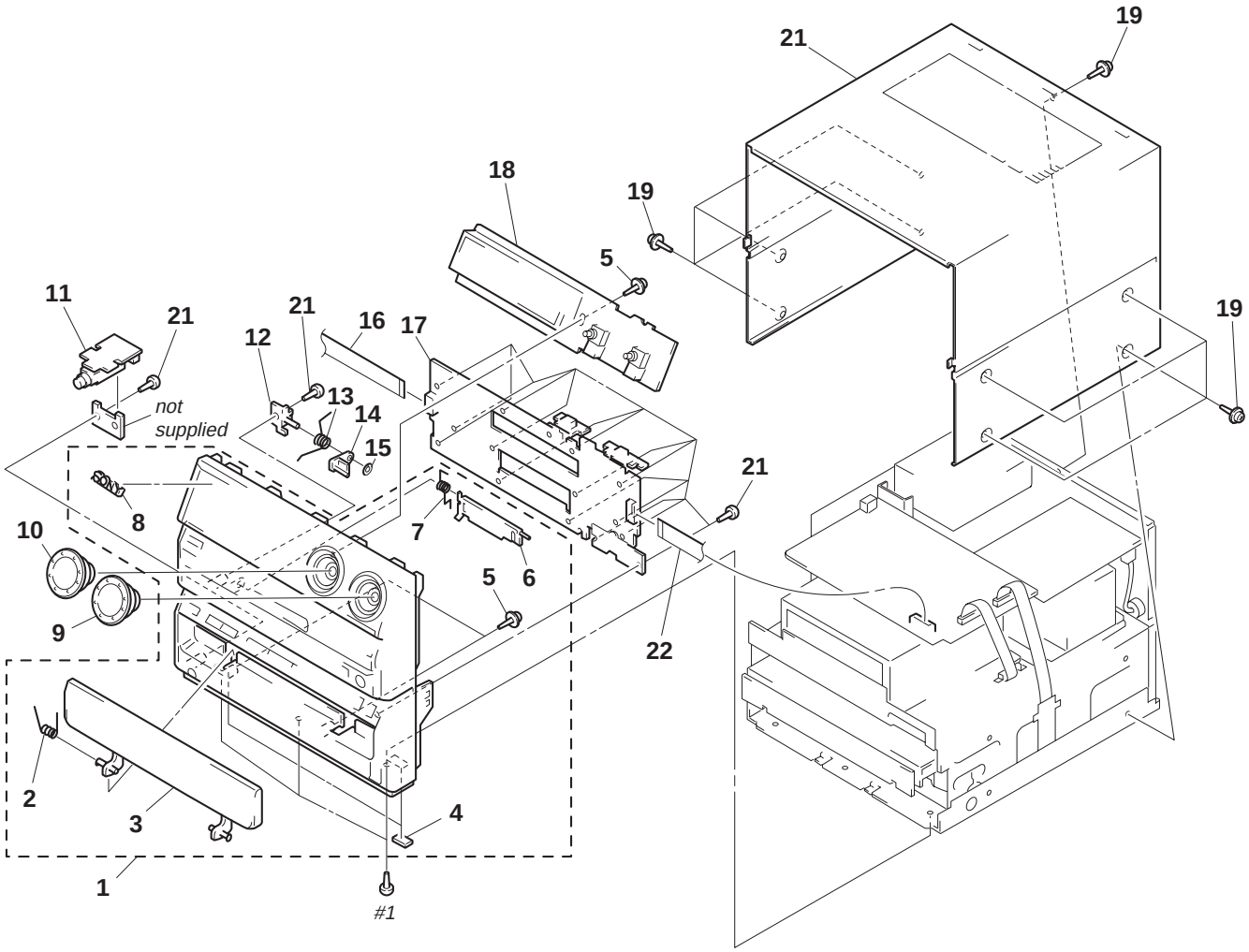
SECTION 7
EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearrance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Abbreviation
  G : German EA : Sausi Arabia
  HK : Hong Kong SP : Singapore
  MY : Malaysia JE : Tourist
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list are given in the last of the electrical parts list.

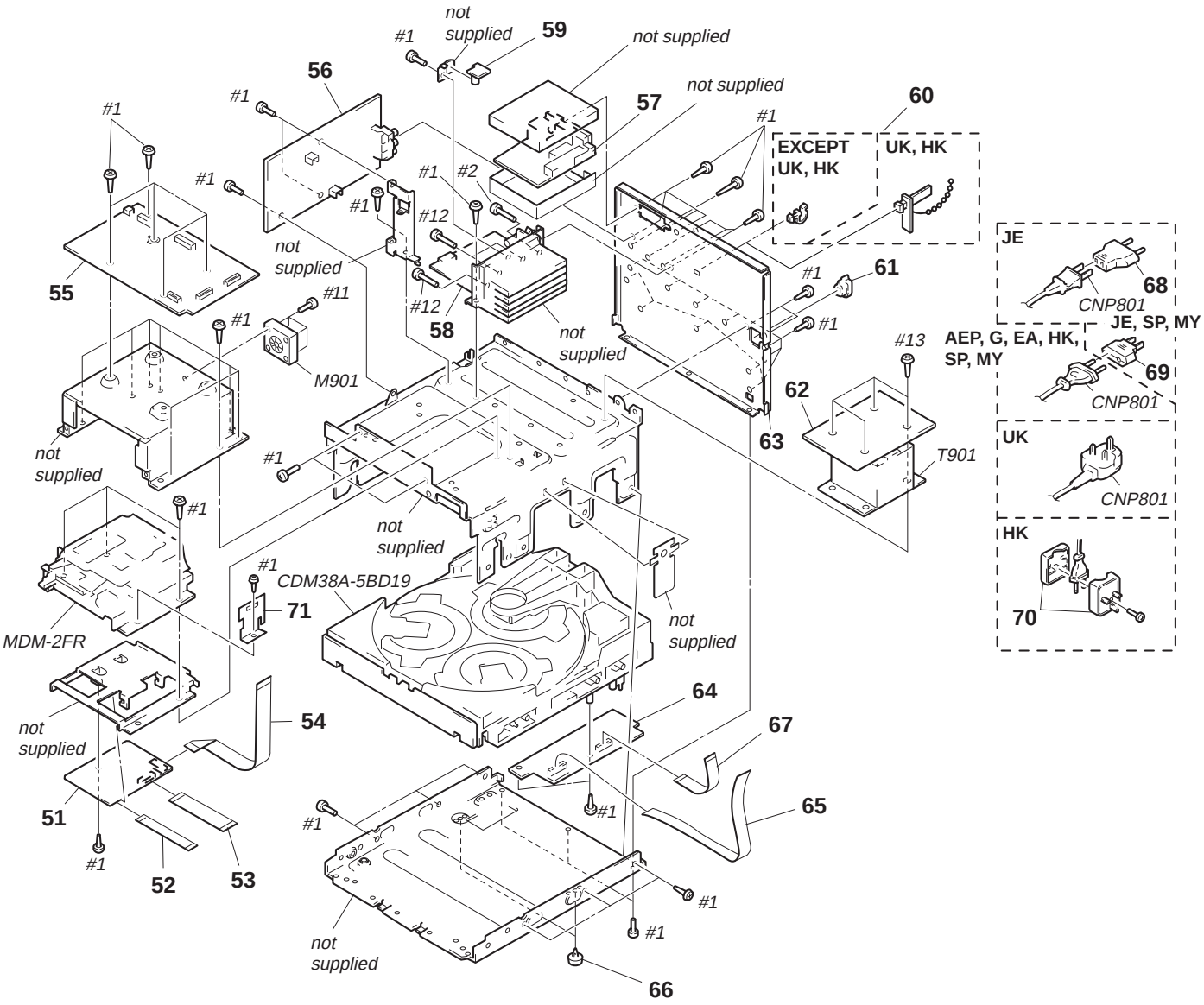
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) CASE, FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
1	X-4947-439-1	PANEL ASSY, FRONT (AEP, UK, G)	
1	X-4947-443-1	PANEL ASSY, FRONT (EA, HK, SP, MY, JE)	
2	4-984-195-01	SPRING (C), TORSION	
3	4-984-175-01	LID (CD)	
4	4-930-336-61	FOOT (FELT)	
5	4-933-134-11	SCREW (+PTPWH M2.6X8)	
6	4-977-669-01	LID (CARTRIDGE)	
7	4-969-236-01	SPRING (LID), TORSION	
8	4-962-708-01	EMBLEM (4-A), SONY	
9	4-984-196-01	KNOB (VOL)	
10	4-984-197-01	KNOB (JOG)	
* 11	1-662-211-11	HEADPHONE BOARD	
12	X-4945-242-1	BRACKET (LEVER LID) ASSY	
13	4-969-215-01	SPRING, TORSION	
14	4-969-213-01	LEVER (LID)	
15	3-681-678-00	WASHER, SLIT	
16	1-776-063-11	WIRE (FLAT TYPE) (22 CORE)	
* 17	A-4390-895-A	PANEL B BOARD, COMPLETE (AEP)	
* 17	A-4390-899-A	PANEL B BOARD, COMPLETE (UK)	
* 17	A-4390-902-A	PANEL B BOARD, COMPLETE (EA, HK)	
* 17	A-4392-026-A	PANEL B BOARD, COMPLETE (JE)	
* 17	A-4392-029-A	PANEL B BOARD, COMPLETE (G)	
* 17	A-4392-035-A	PANEL B BOARD, COMPLETE (SP, MY)	
* 18	A-4390-886-A	PANEL A BOARD, COMPLETE (EA, HK)	
* 18	A-4390-894-A	PANEL A BOARD, COMPLETE (AEP, G)	
* 18	A-4390-898-A	PANEL A BOARD, COMPLETE (UK)	
* 18	A-4390-901-A	PANEL A BOARD, COMPLETE (JE)	
* 18	A-4392-034-A	PANEL A BOARD, COMPLETE (SP, MY)	
19	3-363-099-01	SCREW (CASE 3 TP2)	
* 20	4-984-207-11	CASE	
21	4-951-620-01	SCREW (2.6X8), +BVTP	
22	1-777-473-11	WIRE (FLAT TYPE) (19 CORE)	

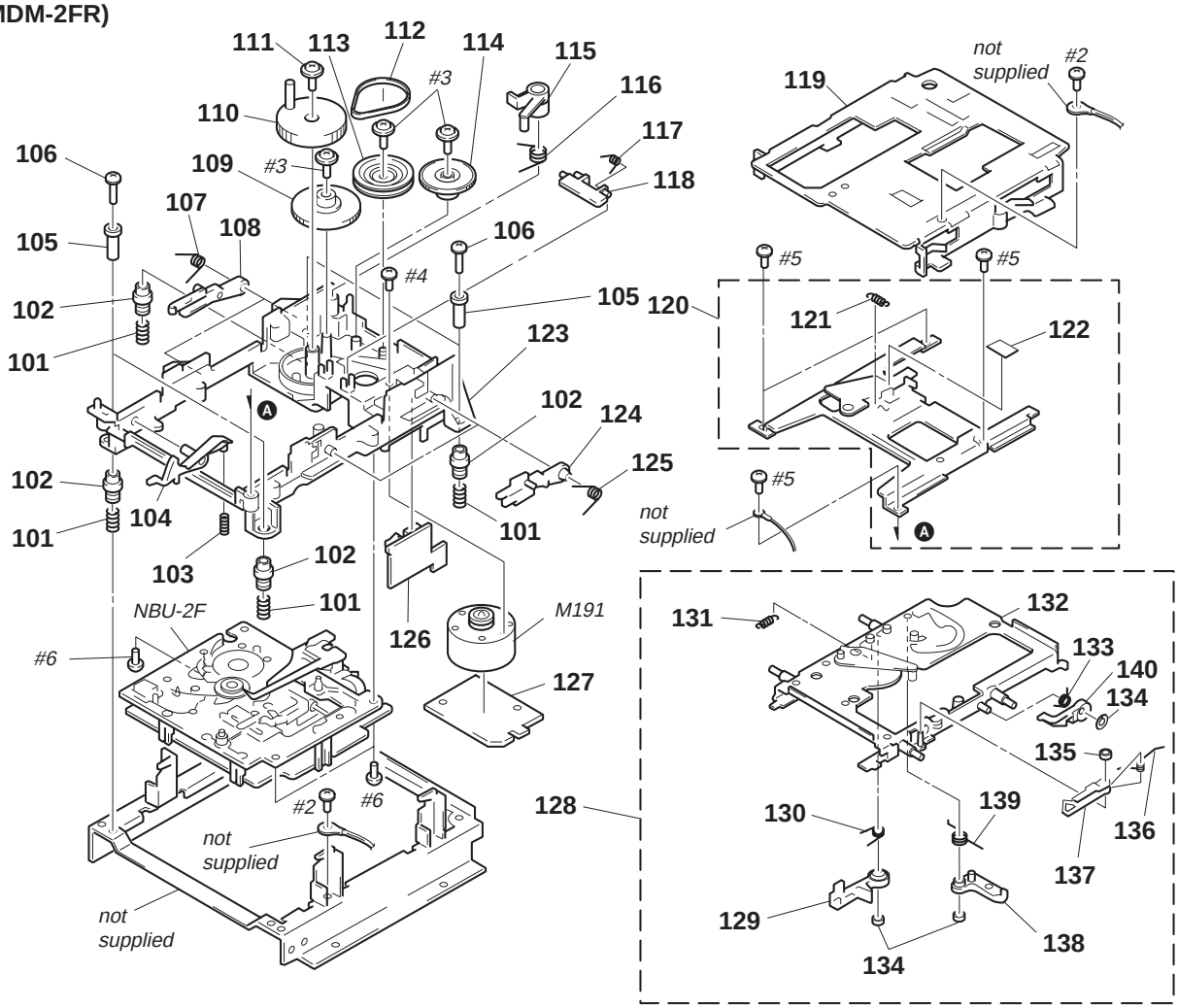
(2) CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
* 51	A-4390-907-A	DIGITAL BOARD, COMPLETE	
52	1-777-471-11	WIRE (FLAT TYPE) (18 CORE)	
53	1-777-470-11	WIRE (FLAT TYPE) (30 CORE)	
54	1-777-475-11	WIRE (FLAT TYPE) (23 CORE)	
* 55	A-4390-875-A	POWER BOARD, COMPLETE (AEP, G)	
* 55	A-4390-879-A	POWER BOARD, COMPLETE (UK)	
* 55	A-4390-883-A	POWER BOARD, COMPLETE (EA, HK, JE)	
* 55	A-4392-031-A	POWER BOARD, COMPLETE (SP, MY)	
* 56	A-4390-874-A	MAIN BOARD, COMPLETE (AEP, G)	
* 56	A-4390-878-A	MAIN BOARD, COMPLETE (UK)	
* 56	A-4390-882-A	MAIN BOARD, COMPLETE (EA, HK, JE)	
* 56	A-4392-030-A	MAIN BOARD, COMPLETE (SP, MY)	
* 57	A-4303-529-A	TCB BOARD, COMPLETE (AEP, UK)	
* 57	A-4303-530-A	TCB BOARD, COMPLETE (G)	
57	1-233-546-21	ENCAPSULATED COMPONENT, FM/AM TUNER (EA, HK, SP, MY)	
* 57	A-4303-528-A	TCB BOARD, COMPLETE (JE)	
* 58	A-4390-872-A	AMPLIFIER BOARD, COMPLETE (EA, HK, JE)	
* 58	A-4390-876-A	AMPLIFIER BOARD, COMPETE (AEP, G)	
* 58	A-4390-880-A	AMPLIFIER BOARD, COMPLETE (UK)	
* 58	A-4392-032-A	AMPLIFIER BOARD, COMPLETE (SP, MY)	
* 59	1-663-500-11	THERMO BOARD	
* 60	4-949-235-01	HOOK (EXCEPT UK, HK)	
60	4-956-370-02	BAND, PLUG FIXED (UK, HK)	
* 61	3-703-244-00	BUSHING (2104), CORD (EXCEPT JE)	
* 61	3-703-571-11	BUSHING (S) (4516), CORD (JE)	
* 62	1-662-206-11	TRANSFORMER BOARD	
* 63	4-984-208-11	PANEL, BACK (AEP)	
* 63	4-984-208-21	PANEL, BACK (UK)	
* 63	4-984-208-31	PANEL, BACK (EA, SP, MY)	
* 63	4-984-208-41	PANEL, BACK (G)	
* 63	4-984-208-51	PANEL, BACK (HK)	
* 63	4-984-208-71	PANEL, BACK (JE)	
* 64	A-4390-888-A	RELAY BOARD, COMPLETE (EA, HK, JE)	
* 64	A-4390-896-A	RELAY BOARD, COMPLETE (AEP, G)	
* 64	A-4390-900-A	RELAY BOARD, COMPLETE (UK)	
* 64	A-4392-036-A	RELAY BOARD, COMPLETE (SP, MY)	
65	1-777-474-11	WIRE (FLAT TYPE) (21 CORE)	
66	4-965-822-01	FOOT	
67	1-777-472-11	WIRE (FLAT TYPE) (19 CORE)	
⚠68	1-569-007-11	ADAPTOR, CONVERSION 2P (JE)	
⚠69	1-569-008-11	ADAPTOR, CONVERSION 2P (EA, SP, MY)	
⚠70	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
71	4-988-061-02	COVER (MDM) (AEP, UK, G)	
⚠CNP801	1-574-805-11	CORD, POWER (AEP, G, EA, HK, SP, MY)	
⚠CNP801	1-575-653-11	CORD, POWER (JE)	
⚠CNP801	1-696-570-21	CORD, POWER (UK)	
⚠T901	1-429-786-11	TRANSFORMER, POWER (AEP, UK, G)	
⚠T901	1-429-787-11	TRANSFORMER, POWER (EA, HK, SP, MY, JE)	
M901	1-698-861-11	MOTOR, DC FAN	

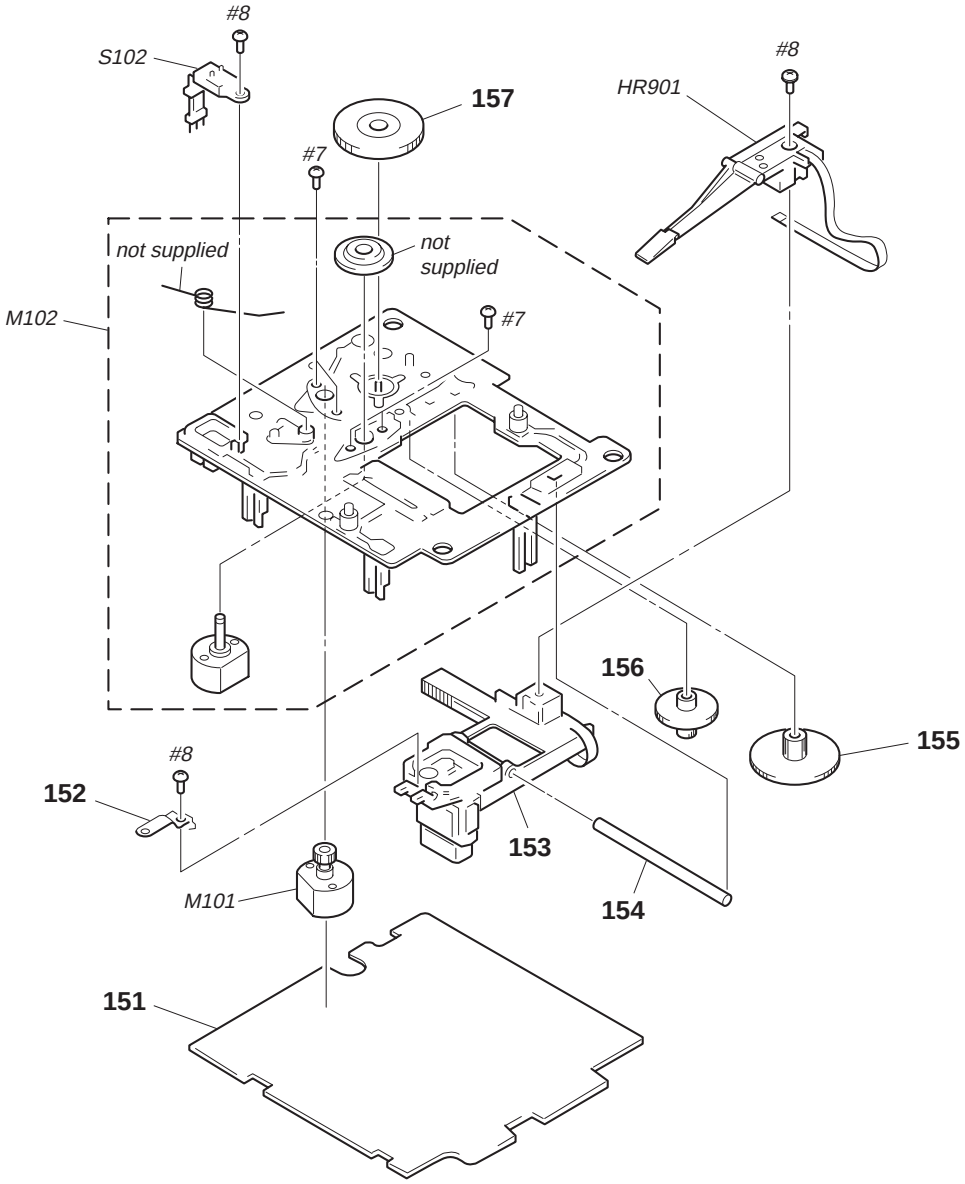
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(3) MD MECHANISM SECTION (MDM-2FR)



Ref. No.	Part No.	Description	Remark
101	4-967-673-01	SPRING, COMPRESSION	
102	4-967-671-01	INSULATOR (MD)	
103	4-970-710-01	SPRING, COMPRESSION	
104	4-979-400-01	LEVER (DOOR)	
105	4-983-100-01	COLLAR (DAMPER)	
106	4-972-910-01	SCREW (2.6X18), +B	
107	4-967-668-01	SPRING (UDL), TORSION	
108	4-967-667-01	LEVER (UDL)	
109	4-977-610-01	GEAR (BD-B)	
110	X-4945-069-1	CAM ASSY	
111	4-933-134-01	SCREW (+PTPWH M2.6X6)	
112	4-967-656-01	BELT (BD)	
113	4-977-608-01	PULLEY (BD)	
114	4-977-609-01	GEAR (BD-A)	
115	4-967-637-01	LEVER (SLM)	
116	4-984-426-01	SPRING (SLM), TORSION	
117	4-968-273-01	SPRING (OWH), TORSION	
118	4-968-272-01	LEVER (OWH)	
* 119	X-4945-872-1	SLIDER (M) ASSY	
120	A-4672-087-A	BRACKET (LVO) ASSY	
121	4-967-664-05	SPRING, TENSION	
122	4-983-110-01	CUSHION (LVO)	
123	4-977-777-01	BASE (BD)	
124	4-967-669-01	LEVER (UDR)	
125	4-967-670-01	SPRING (UDR), TORSION	
* 126	1-653-411-11	DETECTION SW BOARD	
* 127	1-653-412-11	MOTOR BOARD	
128	A-4672-071-B	HOLDER COMPLETE ASSY	
129	4-967-641-01	LEVER (L)	
130	4-967-642-01	SPRING (L), TORSION	
131	4-971-743-02	SPRING, TENSION	
132	X-4947-136-2	HOLDER ASSY	
133	4-982-099-01	SPRING (LOCK), TORSION	
134	4-968-919-01	WASHER, STOPPER	
135	4-968-919-11	WASHER, STOPPER	
136	4-967-646-01	SPRING (SHT), TORSION	
137	4-967-645-01	LEVER (SHT)	
138	4-967-639-01	LEVER (LM)	
139	4-983-106-02	SPRING (LM), TORSION	
140	4-982-040-01	LEVER (LOCK)	
M191	A-4660-646-A	MOTOR (LOADING) ASSY	

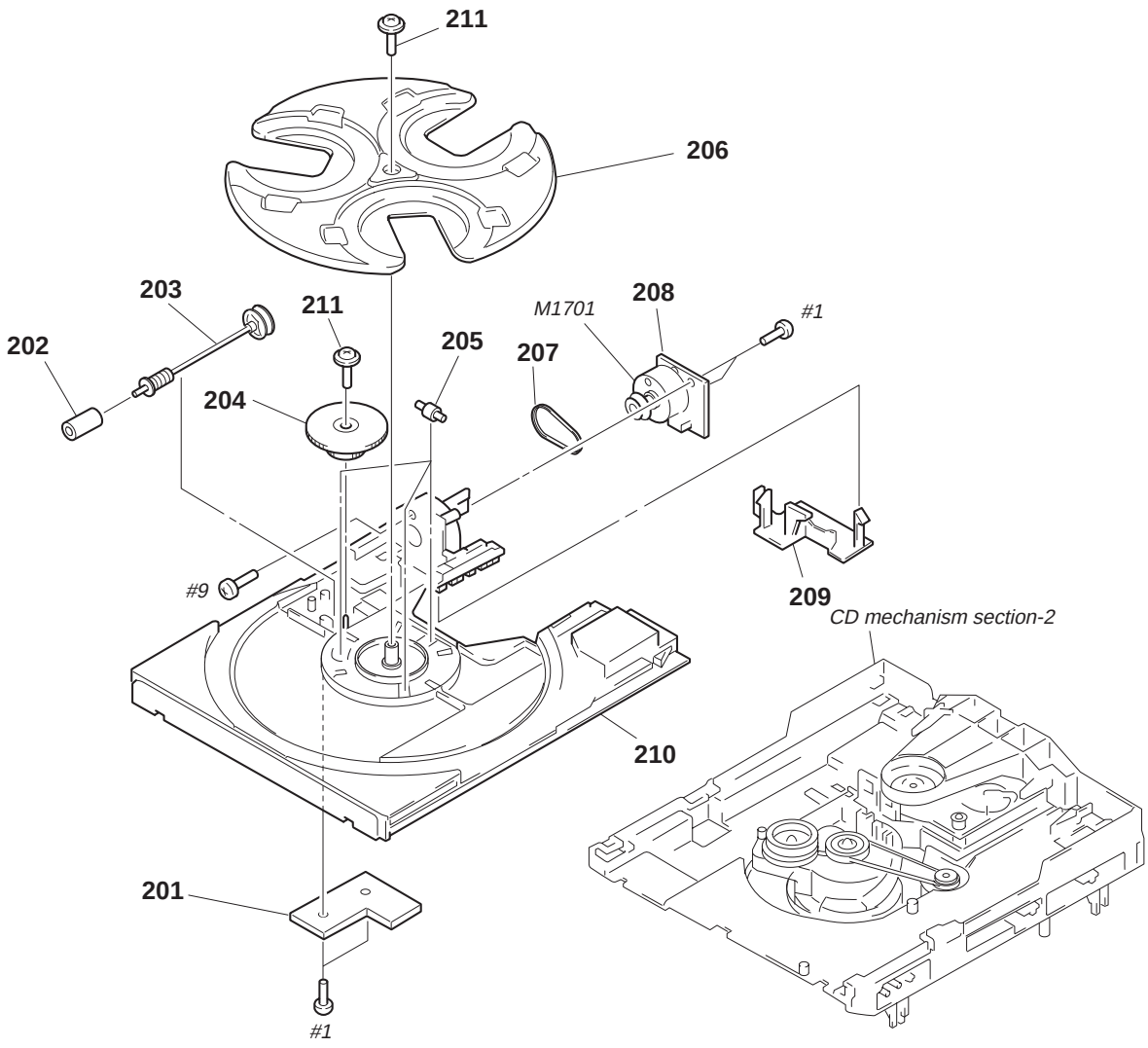
(4) MD BASE UNIT SECTION (MBU-2F)



Ref. No.	Part No.	Description	Remark
* 151	A-4673-656-A	BD (MD) BOARD, COMPLETE	
152	4-967-679-01	SPRING (OP), LEAF	
⚠153	8-583-009-11	OPTICAL PICK-UP (MD) KMS-210A/J-N	
154	4-967-678-01	SHAFT (OP)	
155	4-967-677-01	GEAR (SL-C)	
156	4-967-676-01	GEAR (SL-B)	
157	4-967-675-01	GEAR (SL-A)	
HR901	1-500-304-21	HEAD, OVER LIGHT	
M101	A-4660-651-A	MOTOR (SLED) ASSY (MD)	
M102	A-4660-650-A	CHASSIS ASSY, BU (SPINDLE) (MD)	
S102	1-762-148-11	SWITCH, PUSH (2 KEY)	

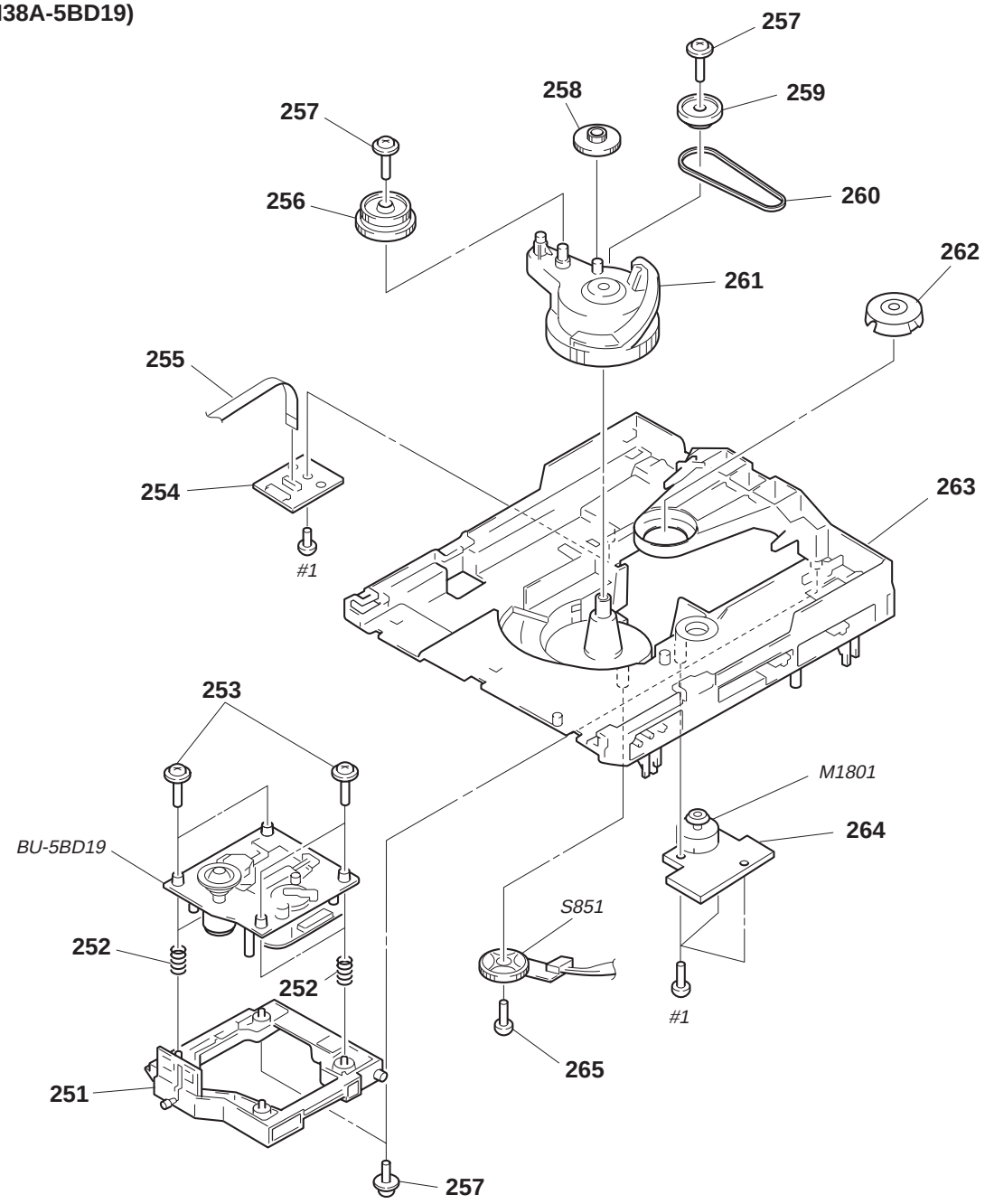
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(5) CD MECHANISM SECTION-1 (CDM38A-5BD19)



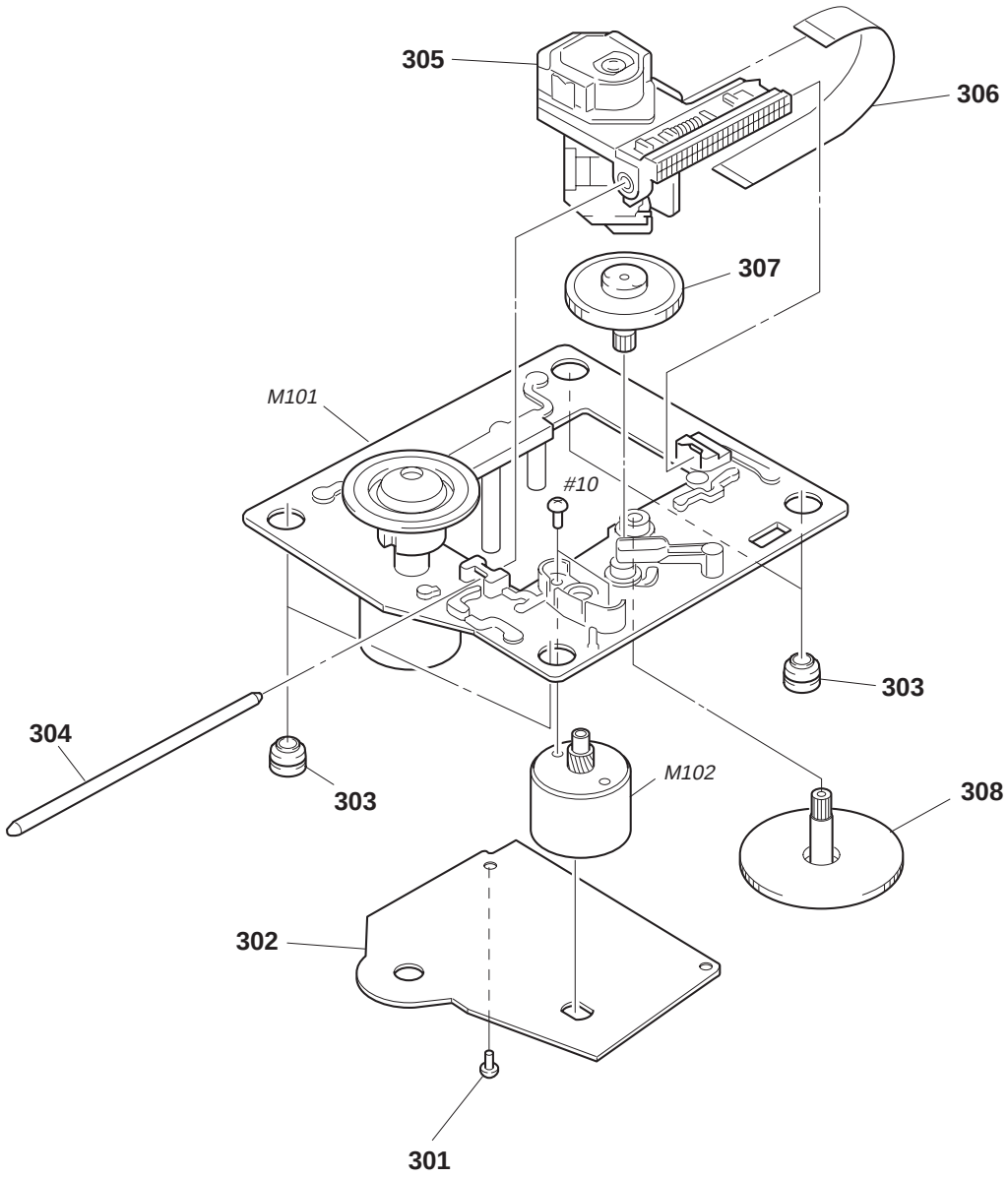
Ref. No.	Part No.	Description	Remark
* 201	1-662-213-11	SENSOR BOARD	
202	4-981-187-01	COLLAR (WORM)	
203	X-4946-295-2	SHAFT ASSY, WORM	
204	4-977-956-01	WHEEL, WORM	
205	X-4924-457-1	ROLLER ASSY	
206	4-977-945-01	TRAY (TURN)	
207	4-977-943-01	BELT (TURN) (1.2)	
* 208	1-662-212-11	MOTOR (TURN) BOARD	
209	4-977-941-01	BEARING (WORM)	
210	4-977-944-01	TRAY (SLIDE)	
211	4-917-583-21	BRACKET, YOKE	
M1701	A-4660-586-A	MOTOR ASSY (TURN)	

(6) CD MECHANISM SECTION-2 (CDM38A-5BD19)



Ref. No.	Part No.	Description	Remark
251	X-4946-296-1	HOLDER (BU) ASSY	
252	4-982-447-01	SPRING (BU), COMPRESSION	
253	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING	
* 254	1-662-215-11	CONNECTOR BOARD	
255	1-776-042-11	WIRE (FLAT TYPE) (8 CORE)	
256	4-977-955-01	GEAR (SL-B)	
257	4-917-583-21	BRACKET, YOKE	
258	4-977-953-01	GEAR (SL-A)	
259	4-977-954-01	PULLEY (SL)	
260	4-977-942-01	BELT (SL) (1.4)	
261	X-4946-491-1	CAM ASSY, BU	
* 262	1-452-879-11	MAGNET	
* 263	X-4946-498-1	CHASSIS (CDM) ASSY	
* 264	1-662-214-11	MOTOR (SLIDE) BOARD	
265	4-951-620-41	SCREW (2.6), +BVTP	
M1801	A-4660-926-A	MOTOR (CDM) ASSY	
S851	1-473-335-11	ENCODER, ROTARY	

(7) CD BASE UNIT SECTION (BU-5BD19)



Ref. No.	Part No.	Description	Remark
301	4-951-620-01	SCREW (2.6X8), +BVTP	
* 302	A-4673-402-A	BD (CD) BOARD, COMPLETE	
303	4-951-940-01	INSULATOR (BU)	
304	4-917-565-01	SHAFT, SLED	
⚠305	8-848-367-11	OPTICAL PICK-UP (CD) KSS-213B/K-N	
306	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
307	4-917-567-01	GEAR (M)	
308	4-917-564-01	GEAR (P), FLATNESS	
M101	X-4917-523-4	BASE (OUTSART) ASSY (SPINDLE) (CD)	
M102	X-4917-504-1	MOTOR ASSY (SLED) (CD)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

AMPLIFIER

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH
- Abbreviation
  G : German EA : Sausi Arabia
  HK : Hong Kong SP : Singapore
  MY : Malaysia JE : Tourist

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-4390-876-A	AMPLIFIER BOARD, COMPLETE (AEP, G)			
*	A-4390-880-A	AMPLIFIER BOARD, COMPLETE (UK)			
*	A-4392-032-A	AMPLIFIER BOARD, COMPLETE (MY, SP)			
		**********			
		< CAPACITOR >			
C901	1-126-963-11	ELECT	4.7uF	20% 50V	
C902	1-162-282-31	CERAMIC	100PF	10% 50V	(AEP, G, UK)
C902	1-162-290-31	CERAMIC	470PF	10% 50V	(MY, SP, EA, HK, JE)
C903	1-162-294-31	CERAMIC	0.001uF	10% 50V	(AEP, G, UK)
C903	1-162-286-31	CERAMIC	220PF	10% 50V	(MY, SP, EA, HK, JE)
C904	1-126-967-11	ELECT	47uF	20% 50V	
C905	1-126-967-11	ELECT	47uF	20% 50V	
C906	1-136-163-00	FILM	0.068uF	5% 50V	
C907	1-136-163-00	FILM	0.068uF	5% 50V	
C921	1-164-159-11	CERAMIC	0.1uF	50V	(AEP, G, UK)
C922	1-164-159-11	CERAMIC	0.1uF	50V	(AEP, G, UK)
C932	1-126-967-11	ELECT	47uF	20% 50V	
C933	1-136-161-00	FILM	0.047uF	5% 50V	
C934	1-126-968-11	ELECT	100uF	20% 50V	
C937	1-126-965-11	ELECT	22uF	20% 50V	
C938	1-126-934-11	ELECT	220uF	20% 16V	
C940	1-126-967-11	ELECT	47uF	20% 50V	
C950	1-136-161-00	FILM	0.047uF	5% 50V	
C951	1-126-963-11	ELECT	4.7uF	20% 50V	
C952	1-162-282-31	CERAMIC	100PF	10% 50V	(AEP, G, UK)
C952	1-162-290-31	CERAMIC	470PF	10% 50V	(MY, SP, EA, HK, JE)
C953	1-162-294-31	CERAMIC	0.001uF	10% 50V	(AEP, G, UK)
C953	1-162-286-31	CERAMIC	220PF	10% 50V	(MY, SP, EA, HK, JE)
C954	1-126-967-11	ELECT	47uF	20% 50V	
C955	1-126-967-11	ELECT	47uF	20% 50V	
C956	1-136-163-00	FILM	0.068uF	5% 50V	
C957	1-136-163-00	FILM	0.068uF	5% 50V	
C971	1-164-159-11	CERAMIC	0.1uF	50V	(AEP, G, UK)
C972	1-164-159-11	CERAMIC	0.1uF	50V	(AEP, G, UK)
C982	1-126-923-11	ELECT	220uF	20% 10V	
C983	1-164-159-11	CERAMIC	0.1uF	50V	
C984	1-124-925-11	ELECT	2.2uF	20% 100V	
C985	1-126-933-11	ELECT	100uF	20% 10V	
C986	1-124-261-00	ELECT	10uF	20% 50V	
C987	1-126-923-11	ELECT	220uF	20% 10V	
C7006	1-126-961-11	ELECT	2.2uF	20% 50V	(UK)
		< CONNECTOR >			
CN901	1-778-452-21	CONNECTOR, BOARD TO BOARD 13P			
* CN903	1-565-561-11	PIN, CONNECTOR 3P			
CN906	1-691-767-11	PLUG (MICRO CONNECTOR) 5P			
		< DIODE >			
D903	8-719-987-63	DIODE 1N4148M			
D931	8-719-987-63	DIODE 1N4148M			
D953	8-719-987-63	DIODE 1N4148M			
D981	8-719-987-63	DIODE 1N4148M			
D982	8-719-987-63	DIODE 1N4148M			
D983	8-719-987-63	DIODE 1N4148M			
		< IC >			
IC901	8-749-920-09	IC STK-4152MK2K			
IC981	8-759-111-68	IC UPC1237HA			
		< COIL >			
L921	1-420-872-00	COIL, AIR-CORE (AEP, G, UK)			
L971	1-420-872-00	COIL, AIR-CORE (AEP, G, UK)			

Ref. No.	Part No.	Description				Remark
		< TRANSISTOR >				
Q901	8-729-661-94	TRANSISTOR	RT1N141SK-TP			
Q902	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA			
Q952	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA			
Q981	8-729-661-94	TRANSISTOR	RT1N141SK-TP			
Q982	8-729-900-63	TRANSISTOR	DTA124ES			
Q983	8-729-661-96	TRANSISTOR	RT1N441SK-TP			
Q991	8-729-620-05	TRANSISTOR	2SC2603-EF			
		< RESISTOR >				
R901	1-249-417-11	CARBON	1K	5%	1/4W	
R902	1-249-437-11	CARBON	47K	5%	1/4W	
R903	1-249-414-11	CARBON	560	5%	1/4W	
R904	1-249-437-11	CARBON	47K	5%	1/4W	
R906	1-249-425-11	CARBON	4.7K	5%	1/4W	
R907	1-249-425-11	CARBON	4.7K	5%	1/4W	
R908	1-249-425-11	CARBON	4.7K	5%	1/4W	
R909	1-249-425-11	CARBON	4.7K	5%	1/4W	
R910	1-249-397-11	CARBON	22	5%	1/4W	
R911	1-249-397-11	CARBON	22	5%	1/4W	
R913	1-249-417-11	CARBON	1K	5%	1/4W	
R914	1-249-431-11	CARBON	15K	5%	1/4W	
R915	1-249-441-11	CARBON	100K	5%	1/4W	
⚠R920	1-217-151-00	METAL PLATE	0.22		2W	
R921	1-249-393-11	CARBON	10	5%	1/4W	
					(AEP, G, UK)	
R924	1-249-435-11	CARBON	33K	5%	1/4W	
R925	1-249-431-11	CARBON	15K	5%	1/4W	
R926	1-249-441-11	CARBON	100K	5%	1/4W	
R927	1-249-409-11	CARBON	220	5%	1/4W	
R928	1-249-409-11	CARBON	220	5%	1/4W	
⚠R932	1-212-881-11	FUSIBLE	100	5%	1/4W	F
R933	1-249-421-11	CARBON	2.2K	5%	1/4W	
R934	1-249-421-11	CARBON	2.2K	5%	1/4W	
R935	1-249-421-11	CARBON	2.2K	5%	1/4W	
R936	1-249-421-11	CARBON	2.2K	5%	1/4W	
R937	1-249-437-11	CARBON	47K	5%	1/4W	
R938	1-249-441-11	CARBON	100K	5%	1/4W	
R939	1-249-433-11	CARBON	22K	5%	1/4W	
R940	1-249-433-11	CARBON	22K	5%	1/4W	
R941	1-249-429-11	CARBON	10K	5%	1/4W	
R942	1-249-413-11	CARBON	470	5%	1/4W	
⚠R943	1-212-881-11	FUSIBLE	100	5%	1/4W	F
R951	1-249-417-11	CARBON	1K	5%	1/4W	
R952	1-249-437-11	CARBON	47K	5%	1/4W	
R953	1-249-414-11	CARBON	560	5%	1/4W	
R954	1-249-437-11	CARBON	47K	5%	1/4W	
R956	1-249-425-11	CARBON	4.7K	5%	1/4W	
R957	1-249-425-11	CARBON	4.7K	5%	1/4W	

Ref. No.	Part No.	Description			Remark
R958	1-249-425-11	CARBON	4.7K	5%	1/4W
R959	1-249-425-11	CARBON	4.7K	5%	1/4W
R960	1-249-397-11	CARBON	22	5%	1/4W
R961	1-249-397-11	CARBON	22	5%	1/4W
R963	1-249-417-11	CARBON	1K	5%	1/4W
R964	1-249-431-11	CARBON	15K	5%	1/4W
R965	1-249-441-11	CARBON	100K	5%	1/4W
⚠R970	1-217-151-00	METAL PLATE	0.22		2W
R971	1-249-393-11	CARBON	10	5%	1/4W
					(AEP, G, UK)
R974	1-249-435-11	CARBON	33K	5%	1/4W
R975	1-249-431-11	CARBON	15K	5%	1/4W
R976	1-249-441-11	CARBON	100K	5%	1/4W
R977	1-249-409-11	CARBON	220	5%	1/4W
R978	1-249-409-11	CARBON	220	5%	1/4W
R981	1-249-429-11	CARBON	10K	5%	1/4W
R983	1-249-429-11	CARBON	10K	5%	1/4W
R984	1-249-441-11	CARBON	100K	5%	1/4W
R985	1-249-435-11	CARBON	33K	5%	1/4W
R986	1-249-397-11	CARBON	22	5%	1/4W
R987	1-249-439-11	CARBON	68K	5%	1/4W
R988	1-249-437-11	CARBON	47K	5%	1/4W
R989	1-249-421-11	CARBON	2.2K	5%	1/4W
R990	1-249-429-11	CARBON	10K	5%	1/4W
R991	1-249-417-11	CARBON	1K	5%	1/4W
R992	1-249-431-11	CARBON	15K	5%	1/4W
R993	1-249-428-11	CARBON	8.2K	5%	1/4W
R994	1-247-807-31	CARBON	100	5%	1/4W
R995	1-247-807-31	CARBON	100	5%	1/4W
⚠R999	1-212-849-00	FUSIBLE	4.7	5%	1/4W F
		< RELAY >			
RY901	1-515-833-11	RELAY			
		< TERMINAL >			
TB901	1-537-240-11	TERMINAL BOARD (CHECKER PIN) (SPEAKER)			
**********					
	A-4673-402-A	BD (CD) BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-126-607-11	ELECT CHIP	47uF	20%	4V
C102	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C103	1-164-346-11	CERAMIC CHIP	1uF		16V
C105	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C106	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C107	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

BD (CD)

Ref. No.	Part No.	Description			Remark
C108	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C109	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C110	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C111	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C113	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C114	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C117	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C118	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C119	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C120	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C121	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-126-607-11	ELECT CHIP	47uF	20%	4V
C125	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C126	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C127	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C128	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C129	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C130	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C131	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C132	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C133	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C134	1-164-346-11	CERAMIC CHIP	1uF		16V
C135	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C136	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C137	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C139	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C140	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C142	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C145	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C146	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C147	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C148	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C149	1-164-346-11	CERAMIC CHIP	1uF		16V
C153	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C154	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
		< CONNECTOR >			
CNU101	1-770-014-11	CONNECTOR, FFC/FPC 16P			
CNU102	1-770-013-11	CONNECTOR, FFC/FPC 19P			
		< IC >			
IC101	8-752-069-56	IC CXA1782BQ			
IC102	8-759-291-06	IC BA6397FP			
IC103	8-752-372-94	IC CXD2507AQ			
IC104	8-759-185-29	IC PCM1710U-B			
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
Q102	8-729-424-08	TRANSISTOR UN2111			
Q103	8-729-421-22	TRANSISTOR UN2211			
		< RESISTOR >			
R102	1-216-001-00	METAL CHIP	10	5%	1/10W
R103	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R104	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R105	1-216-093-00	METAL CHIP	68K	5%	1/10W
R106	1-216-093-00	METAL CHIP	68K	5%	1/10W
R107	1-216-093-00	METAL CHIP	68K	5%	1/10W
R108	1-216-093-00	METAL CHIP	68K	5%	1/10W
R109	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R112	1-216-083-00	METAL CHIP	27K	5%	1/10W
R113	1-216-083-00	METAL CHIP	27K	5%	1/10W
R114	1-216-101-00	METAL CHIP	150K	5%	1/10W
R115	1-216-101-00	METAL CHIP	150K	5%	1/10W
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R117	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R118	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R119	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R120	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R121	1-216-114-00	METAL GLAZE	510K	5%	1/10W
R122	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R123	1-216-099-00	METAL CHIP	120K	5%	1/10W
R124	1-216-091-00	METAL CHIP	56K	5%	1/10W
R125	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R126	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R127	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R128	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R129	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R130	1-216-079-00	METAL CHIP	18K	5%	1/10W
R131	1-216-079-00	METAL CHIP	18K	5%	1/10W
R132	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R133	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R134	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R135	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R136	1-216-073-00	METAL CHIP	10K	5%	1/10W
R137	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R138	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R139	1-216-033-00	METAL CHIP	220	5%	1/10W
R140	1-216-081-00	METAL CHIP	22K	5%	1/10W
R141	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R142	1-216-061-00	METAL CHIP	3.3K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R143	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R144	1-216-073-00	METAL CHIP	10K	5%	1/10W
R145	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R146	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R147	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R148	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R149	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R150	1-216-037-00	METAL CHIP	330	5%	1/10W
R151	1-216-037-00	METAL CHIP	330	5%	1/10W
R152	1-216-037-00	METAL CHIP	330	5%	1/10W
R153	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R154	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R156	1-216-085-00	METAL CHIP	33K	5%	1/10W
R157	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R158	1-216-001-00	METAL CHIP	10	5%	1/10W
		< VARIABLE RESISTOR >			
RV101	1-223-587-11	RES, ADJ, CARBON 22K			
RV101	1-241-396-11	RES, ADJ, METAL GLAZE 22K			
RV102	1-223-587-11	RES, ADJ, CARBON 22K			
RV102	1-241-396-11	RES, ADJ, METAL GLAZE 22K			
RV103	1-223-587-11	RES, ADJ, CARBON 22K			
RV103	1-241-396-11	RES, ADJ, METAL GLAZE 22K			
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			
		< VIBRATOR >			
X101	1-579-280-11	VIBRATOR, CRYSTAL (16.9344MHz)			
**********					
*	A-4673-656-A	BD (MD) BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C103	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C104	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C107	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C108	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C111	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C112	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C113	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C114	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C115	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C116	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C117	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C119	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C121	1-126-395-11	ELECT	22uF	20%	16V
C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C125	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C126	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C127	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C128	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C129	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C130	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C131	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C132	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C134	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C135	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C146	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C151	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C152	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C155	1-104-916-11	TANTAL. CHIP	6.8uF	20%	20V
C160	1-104-601-11	ELECT CHIP	10uF	20%	10V
C161	1-104-601-11	ELECT CHIP	10uF	20%	10V
C163	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C164	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C166	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C167	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C169	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C170	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C171	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C175	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C176	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C177	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C178	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C181	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C182	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C183	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C184	1-107-836-11	ELECT CHIP	22uF	20%	8V
C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
C186	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C191	1-126-395-11	ELECT	22uF	20%	16V

BD (MD)

Ref. No.	Part No.	Description	Remark
C192	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C193	1-164-346-11	CERAMIC CHIP 1uF 16V	
C194	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
		< CONNECTOR >	
CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P	
CN102	1-766-510-21	CONNECTOR, FFC/FPC 30P	
CN103	1-766-509-21	CONNECTOR, FFC/FPC 18P	
CN104	1-766-898-21	HOUSING, CONNECTOR (PC BOARD) 4P	
		< DIODE >	
D101	8-719-988-62	DIODE 1SS355	
D155	8-719-031-17	DIODE 1SS322-TE85L	
D161	8-719-421-15	DIODE MA8027-L	
D181	8-719-033-60	DIODE F1P2STP	
D183	8-719-033-60	DIODE F1P2STP	
		< IC >	
IC101	8-752-072-68	IC CXA1981AR	
IC102	8-759-243-19	IC TC7SU04F	
IC121	8-752-375-36	IC CXD2535BR	
IC122	8-759-243-19	IC TC7SU04F	
IC151	8-759-179-60	IC MPC17A38VMEL	
IC171	8-759-504-12	IC X24C01S	
IC172	8-759-149-73	IC UPC842G2	
IC181	8-759-095-65	IC TC74ACT540FS	
IC182	8-759-243-19	IC TC7SU04F	
IC191	8-759-822-99	IC L88MS05T-FA	
		< COIL >	
L101	1-414-234-11	INDUCTOR, FERRITE BEAD	
L102	1-414-234-11	INDUCTOR, FERRITE BEAD	
L103	1-414-234-11	INDUCTOR, FERRITE BEAD	
L105	1-414-234-11	INDUCTOR, FERRITE BEAD	
L106	1-414-234-11	INDUCTOR, FERRITE BEAD	
L121	1-414-234-11	INDUCTOR, FERRITE BEAD	
L122	1-412-039-51	INDUCTOR CHIP 100uH	
L151	1-412-622-51	INDUCTOR 10uH	
L152	1-412-622-51	INDUCTOR 10uH	
L153	1-412-039-51	INDUCTOR CHIP 100uH	
L154	1-412-039-51	INDUCTOR CHIP 100uH	
L155	1-410-980-51	INDUCTOR CHIP 1mH	
L161	1-414-234-11	INDUCTOR, FERRITE BEAD	
L162	1-414-234-11	INDUCTOR, FERRITE BEAD	
L195	1-233-316-21	FILTER, CHIP EMI	
		< TRANSISTOR >	
Q101	8-729-905-12	TRANSISTOR DTA144EU	
Q151	8-729-905-18	TRANSISTOR DTC144EU	
Q162	8-729-101-07	TRANSISTOR 2SB798-DL	
Q163	8-729-905-12	TRANSISTOR DTA144EU	
Q164	8-729-924-19	TRANSISTOR DTA123JU	
Q181	8-729-018-75	TRANSISTOR 2SJ278MY	
Q182	8-729-017-65	TRANSISTOR 2SK1764KY	
		< RESISTOR >	
R101	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R102	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R103	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R104	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R105	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R106	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R107	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R110	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R113	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R114	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R116	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R117	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R120	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R121	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R122	1-216-295-00	CONDUCTOR, CHIP (2012)	
R123	1-216-037-00	METAL CHIP 330 5% 1/10W	
R124	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R125	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R126	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R128	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R129	1-216-037-00	METAL CHIP 330 5% 1/10W	
R130	1-216-041-00	METAL CHIP 470 5% 1/10W	
R131	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R132	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R133	1-216-129-00	METAL CHIP 2.2M 5% 1/10W	
R134	1-216-037-00	METAL CHIP 330 5% 1/10W	
R135	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R136	1-216-041-00	METAL CHIP 470 5% 1/10W	
R137	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R139	1-216-017-00	METAL GLAZE 47 5% 1/10W	
R140	1-216-017-00	METAL GLAZE 47 5% 1/10W	
R141	1-216-295-00	CONDUCTOR, CHIP (2012)	
R142	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R143	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R144	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R145	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R146	1-216-037-00	METAL CHIP 330 5% 1/10W	
R147	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R148	1-216-045-00	METAL CHIP 680 5% 1/10W	
R149	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R150	1-216-295-00	CONDUCTOR, CHIP (2012)	
R151	1-216-097-00	METAL GLAZE 100K 5% 1/10W	

Ref. No.	Part No.	Description			Remark
R154	1-220-262-11	METAL GLAZE	680	5%	1/4W
R155	1-220-262-11	METAL GLAZE	680	5%	1/4W
R158	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R161	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R162	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R163	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R164	1-216-045-00	METAL CHIP	680	5%	1/10W
R165	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R166	1-220-250-11	METAL GLAZE	10	5%	1/2W
R167	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R169	1-219-724-11	METAL CHIP	1	1%	1/4W
R170	1-216-073-00	METAL CHIP	10K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R172	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R174	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R176	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R178	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R183	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R186	1-216-134-00	METAL CHIP	2.2	5%	1/8W
R187	1-216-134-00	METAL CHIP	2.2	5%	1/8W
		< VARIABLE RESISTOR >			
RV101	1-241-396-11	RES, ADJ, METAL GLAZE 22K			
RV102	1-241-396-11	RES, ADJ, METAL GLAZE 22K			
		< SWITCH >			
S101	1-572-467-61	SWITCH, PUSH (1 KEY) (LIMIT)			
**********					
*	1-662-215-11	CONNECTOR BOARD			
		**********			
		< CONNECTOR >			
* CN1701	1-568-946-11	PIN, CONNECTOR 8P			
CN1702	1-750-413-11	CONNECTOR, FFC/FPC 8P			
		< TRANSISTOR >			
Q1701	8-729-661-94	TRANSISTOR RT1N141SK-TP			
		< RESISTOR >			
R1703	1-249-435-11	CARBON	33K	5%	1/4W
R1704	1-249-429-11	CARBON	10K	5%	1/4W
R1705	1-249-417-11	CARBON	1K	5%	1/4W
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Ref. No.	Part No.	Description			Remark
*	1-653-411-11	DETECTION SW BOARD			
		**********			
		< CONNECTOR >			
CN193	1-770-010-21	CONNECTOR, BOARD TO BOARD 4P			
		< SWITCH >			
S191	1-762-149-11	SWITCH, PUSH (1 KEY) (LOAD OUT DET)			
S192	1-762-149-11	SWITCH, PUSH (1 KEY) (LOAD IN DET)			
S193	1-762-149-11	SWITCH, PUSH (1 KEY) (CHACKING IN DET)			
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*	A-4390-907-A	DIGITAL BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C202	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C206	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C207	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C212	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C213	1-126-395-11	ELECT	22uF	20%	16V
C253	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C254	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C255	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C256	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C271	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C273	1-126-395-11	ELECT	22uF	20%	16V
C274	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C275	1-163-091-00	CERAMIC CHIP	8PF		50V
C276	1-163-091-00	CERAMIC CHIP	8PF		50V
C280	1-126-204-11	ELECT CHIP	47uF	20%	16V
C281	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C282	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C284	1-163-091-00	CERAMIC CHIP	8PF		50V
C285	1-126-204-11	ELECT CHIP	47uF	20%	16V
C286	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C287	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C301	1-126-395-11	ELECT	22uF	20%	16V
C302	1-126-395-11	ELECT	22uF	20%	16V
C303	1-126-395-11	ELECT	22uF	20%	16V
C304	1-126-395-11	ELECT	22uF	20%	16V
C305	1-126-395-11	ELECT	22uF	20%	16V
C306	1-126-395-11	ELECT	22uF	20%	16V
C307	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C308	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C309	1-126-204-11	ELECT CHIP	47uF	20%	16V
C310	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C311	1-124-779-00	ELECT CHIP	10uF	20%	16V

DIGITAL

Ref. No.	Part No.	Description			Remark
C312	1-164-346-11	CERAMIC CHIP	1uF		16V
C313	1-126-204-11	ELECT CHIP	47uF	20%	16V
C314	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C315	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C316	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C317	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C318	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C320	1-126-204-11	ELECT CHIP	47uF	20%	16V
C321	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C323	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C344	1-126-395-11	ELECT	22uF	20%	16V
C361	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C362	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C363	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C364	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C365	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C366	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C431	1-164-346-11	CERAMIC CHIP	1uF		16V
C471	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C472	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C474	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C475	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C477	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C480	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C481	1-126-204-11	ELECT CHIP	47uF	20%	16V
C482	1-126-204-11	ELECT CHIP	47uF	20%	16V
C483	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1001	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1002	1-216-295-00	CONDUCTOR, CHIP		(2012)	
C1003	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1004	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1005	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C1006	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C1009	1-163-025-11	CERAMIC CHIP	0.001uF		50V
		< CONNECTOR >			
CN202	1-774-031-21	CONNECTOR, FFC/FPC 30P			
CN221	1-774-030-21	CONNECTOR, FFC/FPC 18P			
CN223	1-770-706-11	CONNECTOR, FFC/FPC 23P			
CN251	1-774-180-11	PIN, CONNECTOR (PC BOARD) 6P			
CN281	1-774-863-11	PIN, CONNECTOR (PC BOARD) 8P			
		< DIODE >			
D401	8-719-016-74	DIODE 1SS352 (suffix No. -13)			
D401	8-719-800-76	DIODE 1SS226 (suffix No. -14)			

Ref. No.	Part No.	Description			Remark
		< FERRITE BEAD >			
FB272	1-550-907-21	BEAD, FERRITE (CHIP)			
FB274	1-216-295-00	CONDUCTOR, CHIP		(2012)	
FB471	1-216-295-00	CONDUCTOR, CHIP		(2012)	
		< IC >			
IC201	8-759-394-99	IC M37610MD-068FP			
IC271	8-752-371-17	IC CXD2536R			
IC272	8-759-382-10	IC M5M44400BJ-7L2			
IC301	8-759-636-55	IC M5218AFP			
IC302	8-759-636-55	IC M5218AFP			
IC303	8-759-429-16	IC AK4506-VS-E1			
IC342	8-759-636-55	IC M5218AFP			
IC431	8-759-040-83	IC BA6287F			
IC480	8-759-032-23	IC MC74HC74AF			
		< COIL >			
L221	1-550-907-21	BEAD, FERRITE (CHIP)			
L301	1-216-295-00	CONDUCTOR, CHIP		(2012)	
L480	1-550-907-21	BEAD, FERRITE (CHIP)			
L481	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
L482	1-409-556-11	COIL, CHOKE	47uH		
		< TRANSISTOR >			
Q201	8-729-421-19	TRANSISTOR UN2213			
		< RESISTOR >			
R204	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R206	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R209	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R214	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R216	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R221	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R223	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R226	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R229	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R230	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R231	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R233	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R234	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R236	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R239	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R240	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R241	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R242	1-216-073-00	METAL CHIP	10K	5% 1/10W	

Ref. No.	Part No.	Description			Remark
R243	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R244	1-216-073-00	METAL CHIP	10K	5%	1/10W
R245	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R246	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R247	1-216-073-00	METAL CHIP	10K	5%	1/10W
R248	1-216-073-00	METAL CHIP	10K	5%	1/10W
R250	1-216-073-00	METAL CHIP	10K	5%	1/10W
R251	1-216-073-00	METAL CHIP	10K	5%	1/10W
R252	1-216-073-00	METAL CHIP	10K	5%	1/10W
R257	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R258	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R271	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R272	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R273	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R274	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R275	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R276	1-216-037-00	METAL CHIP	330	5%	1/10W
R277	1-216-033-00	METAL CHIP	220	5%	1/10W
R278	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R279	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R280	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R281	1-216-041-00	METAL CHIP	470	5%	1/10W
R282	1-216-025-00	METAL GLAZE	100	5%	1/10W
R283	1-216-033-00	METAL CHIP	220	5%	1/10W
R284	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R285	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R286	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R287	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R288	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R301	1-216-073-00	METAL CHIP	10K	5%	1/10W
R302	1-216-073-00	METAL CHIP	10K	5%	1/10W
R303	1-216-073-00	METAL CHIP	10K	5%	1/10W
R304	1-216-073-00	METAL CHIP	10K	5%	1/10W
R305	1-216-073-00	METAL CHIP	10K	5%	1/10W
R306	1-216-073-00	METAL CHIP	10K	5%	1/10W
R307	1-216-073-00	METAL CHIP	10K	5%	1/10W
R308	1-216-073-00	METAL CHIP	10K	5%	1/10W
R309	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R310	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R311	1-216-041-00	METAL CHIP	470	5%	1/10W
R312	1-216-041-00	METAL CHIP	470	5%	1/10W
R313	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R314	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R315	1-216-041-00	METAL CHIP	470	5%	1/10W
R316	1-216-041-00	METAL CHIP	470	5%	1/10W
R317	1-216-001-00	METAL CHIP	10	5%	1/10W
R318	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R319	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R320	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R321	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R322	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R361	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R362	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R363	1-208-814-11	METAL CHIP	22K	0.50%	1/10W
R364	1-208-814-11	METAL CHIP	22K	0.50%	1/10W
R365	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R366	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R367	1-208-814-11	METAL CHIP	22K	0.50%	1/10W
R368	1-208-814-11	METAL CHIP	22K	0.50%	1/10W
R369	1-208-822-11	METAL CHIP	47K	0.50%	1/10W
R370	1-208-822-11	METAL CHIP	47K	0.50%	1/10W
R371	1-208-822-11	METAL CHIP	47K	0.50%	1/10W
R372	1-208-822-11	METAL CHIP	47K	0.50%	1/10W
R430	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R431	1-216-021-00	METAL CHIP	68	5%	1/10W
R432	1-216-021-00	METAL CHIP	68	5%	1/10W
R461	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R601	1-216-025-00	METAL GLAZE	100	5%	1/10W
R604	1-216-073-00	METAL CHIP	10K	5%	1/10W
R610	1-550-907-21	BEAD, FERRITE	(CHIP)		
R611	1-550-907-21	BEAD, FERRITE	(CHIP)		
R612	1-550-907-21	BEAD, FERRITE	(CHIP)		
R613	1-550-907-21	BEAD, FERRITE	(CHIP)		
R614	1-216-295-91	CONDUCTOR, CHIP		(2012)	
R615	1-550-907-21	BEAD, FERRITE	(CHIP)		
R616	1-550-907-21	BEAD, FERRITE	(CHIP)		
R617	1-550-907-21	BEAD, FERRITE	(CHIP)		
R619	1-550-907-21	BEAD, FERRITE	(CHIP)		
R620	1-550-907-21	BEAD, FERRITE	(CHIP)		
R621	1-550-907-21	BEAD, FERRITE	(CHIP)		
R622	1-550-907-21	BEAD, FERRITE	(CHIP)		
R624	1-550-907-21	BEAD, FERRITE	(CHIP)		
R625	1-550-907-21	BEAD, FERRITE	(CHIP)		
R626	1-550-907-21	BEAD, FERRITE	(CHIP)		
R627	1-216-025-00	METAL GLAZE	100	5%	1/10W
R629	1-216-238-00	METAL CHIP	47K	5%	1/8W
R630	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R631	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R632	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R633	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R634	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R635	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R637	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R640	1-550-907-21	BEAD, FERRITE	(CHIP)		
R641	1-550-907-21	BEAD, FERRITE	(CHIP)		
R642	1-550-907-21	BEAD, FERRITE	(CHIP)		
R643	1-550-907-21	BEAD, FERRITE	(CHIP)		
R644	1-550-907-21	BEAD, FERRITE	(CHIP)		

HEADPHONE | MAIN

Ref. No.	Part No.	Description				Remark
R646	1-550-907-21	BEAD, FERRITE (CHIP)				
		< VIBRATOR >				
X201	1-760-493-11	VIBRATOR, CERAMIC (CHIP TYPE) (8MHz)				
X203	1-760-841-11	VIBRATOR, CRYSTAL (45MHz)				
**********						
*	1-662-211-11	HEADPHONE BOARD				
		**********				
		< CONNECTOR >				
CN904	1-691-767-11	PLUG (MICRO CONNECTOR) 5P				
		< JACK >				
J901	1-770-225-11	JACK (LARGE TYPE) (PHONES)				
**********						
*	A-4390-874-A	MAIN BOARD, COMPLETE (AEP, G)				
*	A-4390-878-A	MAIN BOARD, COMPLETE (UK)				
*	A-4392-030-A	MAIN BOARD, COMPLETE (MY, SP)				
*	A-4390-882-A	MAIN BOARD, COMPLETE (EA, HK, JE)				
		**********				
		< CAPACITOR >				
C103	1-136-169-00	FILM	0.22uF	5%	50V	
C104	1-136-169-00	FILM	0.22uF	5%	50V	
C105	1-136-163-00	FILM	0.068uF	5%	50V	
C106	1-136-163-00	FILM	0.068uF	5%	50V	
C107	1-136-156-00	FILM	0.018uF	5%	50V	
C108	1-136-156-00	FILM	0.018uF	5%	50V	
C109	1-102-126-00	CERAMIC	0.0056uF	10%	50V	
C110	1-162-600-11	CERAMIC	0.0047uF	30%	16V	
C111	1-162-600-11	CERAMIC	0.0047uF	30%	16V	
C112	1-126-963-11	ELECT	4.7uF	20%	50V	
C113	1-126-963-11	ELECT	4.7uF	20%	50V	
C114	1-136-166-00	FILM	0.12uF	5%	50V	
C115	1-136-166-00	FILM	0.12uF	5%	50V	
C116	1-126-961-11	ELECT	2.2uF	20%	50V	
C117	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C118	1-124-907-11	ELECT	10uF	20%	50V	
C119	1-126-163-11	ELECT	4.7uF	20%	50V	
C134	1-124-907-11	ELECT	10uF	20%	50V	
C135	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C153	1-136-169-00	FILM	0.22uF	5%	50V	
C154	1-136-169-00	FILM	0.22uF	5%	50V	
C155	1-136-163-00	FILM	0.068uF	5%	50V	
C156	1-136-163-00	FILM	0.068uF	5%	50V	
C157	1-136-156-00	FILM	0.018uF	5%	50V	
C158	1-136-156-00	FILM	0.018uF	5%	50V	
C159	1-102-126-00	CERAMIC	0.0056uF	10%	50V	
C160	1-162-600-11	CERAMIC	0.0047uF	30%	16V	
C161	1-162-600-11	CERAMIC	0.0047uF	30%	16V	
C162	1-126-963-11	ELECT	4.7uF	20%	50V	
C163	1-126-963-11	ELECT	4.7uF	20%	50V	
C164	1-136-166-00	FILM	0.12uF	5%	50V	
C165	1-136-166-00	FILM	0.12uF	5%	50V	
C166	1-126-961-11	ELECT	2.2uF	20%	50V	
C167	1-124-907-11	ELECT	10uF	20%	50V	
C168	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C169	1-126-963-11	ELECT	4.7uF	20%	50V	
C702	1-126-163-11	ELECT	4.7uF	20%	50V	
C703	1-126-963-11	ELECT	4.7uF	20%	50V	
C715	1-162-282-31	CERAMIC	100PF	10%	50V	
C717	1-162-282-31	CERAMIC	100PF	10%	50V	(AEP, G, UK)
C721	1-162-600-11	CERAMIC	0.0047uF	30%	16V	
C722	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C723	1-126-163-11	ELECT	4.7uF	20%	50V	
C724	1-126-157-11	ELECT	10uF	20%	16V	
C726	1-124-907-11	ELECT	10uF	20%	50V	
C733	1-124-907-11	ELECT	10uF	20%	50V	
C734	1-124-907-11	ELECT	10uF	20%	50V	
C752	1-126-963-11	ELECT	4.7uF	20%	50V	
C753	1-126-963-11	ELECT	4.7uF	20%	50V	
C755	1-162-282-31	CERAMIC	100PF	10%	50V	
C767	1-162-282-31	CERAMIC	100PF	10%	50V	(AEP, G, UK)
C771	1-162-600-11	CERAMIC	0.0047uF	30%	16V	
C772	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C773	1-126-163-11	ELECT	4.7uF	20%	50V	
C774	1-126-157-11	ELECT	10uF	20%	16V	
C776	1-126-157-11	ELECT	10uF	20%	16V	
C799	1-162-282-31	CERAMIC	100PF	10%	50V	
C1000	1-162-294-31	CERAMIC	0.001uF	10%	50V	(AEP, G, UK)
C1001	1-162-306-11	CERAMIC	0.01uF	30%	16V	

Ref. No.	Part No.	Description			Remark
C1031	1-124-464-11	ELECT	0.22uF	20%	50V
C7001	1-101-884-00	CERAMIC	56PF	5%	50V (AEP, G, UK)
C7002	1-101-884-00	CERAMIC	56PF	5%	50V (AEP, G, UK)
C7003	1-164-159-11	CERAMIC	0.1uF		50V (AEP, G, UK)
C7004	1-136-177-00	FILM	1uF	5%	50V (AEP, G, UK)
C7005	1-104-664-11	ELECT	47uF	20%	10V (AEP, G, UK)
C7006	1-126-961-11	ELECT	2.2uF	20%	50V (AEP, G, UK)
C7007	1-162-288-31	CERAMIC	330PF	10%	50V (AEP, G, UK)
C7008	1-164-159-11	CERAMIC	0.1uF		50V (AEP, G, UK)
C7009	1-136-177-00	FILM	1uF	5%	50V (AEP, G, UK)
C7010	1-162-291-31	CERAMIC	560PF	10%	50V (AEP, G, UK)
C7011	1-104-664-11	ELECT	47uF	20%	10V (AEP, G, UK)
C7012	1-104-665-11	ELECT	100uF	20%	16V (AEP, G, UK)
C7013	1-126-157-11	ELECT	10uF	20%	16V
C7014	1-164-159-11	CERAMIC	0.1uF		50V (AEP, G, UK)
C7015	1-164-159-11	CERAMIC	0.1uF		50V (AEP, G, UK)
		< CONNECTOR >			
CN101	1-691-770-11	PLUG (MICRO CONNECTOR) 8P			
CN102	1-770-495-21	CONNECTOR, BOARD TO BOARD 9P			
CN103	1-770-650-11	CONNECTOR, FFC/FPC 22P			
CN106	1-778-448-21	CONNECTOR, BOARD TO BOARD 13P			
CN107	1-774-289-11	PIN, CONNECTOR (PC BOARD) 15P			
		< DIODE >			
D701	8-719-200-82	DIODE 11ES2			
D702	8-719-200-82	DIODE 11ES2			
D711	8-719-987-63	DIODE 1N4148M			
D712	8-719-987-63	DIODE 1N4148M			
D1031	8-719-987-63	DIODE 1N4148M			
		< TERMINAL >			
* E101	1-537-738-21	TERMINAL, EARTH			

Ref. No.	Part No.	Description			Remark
		< IC >			
IC105	8-759-331-39	IC M62427FP			
IC701	8-759-000-48	IC MC14052BCP			
IC702	8-759-000-48	IC MC14052BCP			
IC703	8-759-634-51	IC M5218AP			
IC7001	8-759-169-99	IC SAA6579 (AEP, G, UK)			
IC7002	8-759-634-51	IC M5218AP (AEP, G, UK)			
		< JACK >			
J101	1-770-890-11	JACK, PIN 6P (VIDEO/GAME IN,TAPE IN/OUT)			
		< TRANSISTOR >			
Q102	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q152	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q190	8-729-661-98	TRANSISTOR RT1P141SK-TP			
Q191	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q192	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q711	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q720	8-729-661-97	TRANSISTOR RT1P441SK-TP			
Q761	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q791	8-729-661-94	TRANSISTOR RT1N141SK-TP			
		< RESISTOR >			
R105	1-249-437-11	CARBON	47K	5%	1/4W
R108	1-247-893-11	CARBON	390K	5%	1/4W
R109	1-249-421-11	CARBON	2.2K	5%	1/4W
R110	1-249-433-11	CARBON	22K	5%	1/4W
R111	1-249-441-11	CARBON	100K	5%	1/4W
R112	1-249-421-11	CARBON	2.2K	5%	1/4W
R119	1-249-437-11	CARBON	47K	5%	1/4W
R120	1-247-903-00	CARBON	1M	5%	1/4W
R125	1-247-807-31	CARBON	100	5%	1/4W
R126	1-247-903-00	CARBON	1M	5%	1/4W
R130	1-249-425-11	CARBON	4.7K	5%	1/4W
R135	1-247-807-31	CARBON	100	5%	1/4W
R136	1-247-807-31	CARBON	100	5%	1/4W
R137	1-247-807-31	CARBON	100	5%	1/4W
R138	1-247-807-31	CARBON	100	5%	1/4W
R139	1-247-807-31	CARBON	100	5%	1/4W
R140	1-247-807-31	CARBON	100	5%	1/4W
R143	1-247-807-31	CARBON	100	5%	1/4W
R144	1-247-807-31	CARBON	100	5%	1/4W
R145	1-247-807-31	CARBON	100	5%	1/4W
R147	1-247-807-31	CARBON	100	5%	1/4W
R148	1-247-807-31	CARBON	100	5%	1/4W
R149	1-247-807-31	CARBON	100	5%	1/4W
R151	1-249-437-11	CARBON	47K	5%	1/4W

MAIN

Ref. No.	Part No.	Description			Remark
R154	1-247-807-31	CARBON	100	5%	1/4W (AEP, G, UK)
R155	1-247-807-31	CARBON	100	5%	1/4W (AEP, G, UK)
R158	1-247-893-11	CARBON	390K	5%	1/4W
R159	1-249-421-11	CARBON	2.2K	5%	1/4W
R160	1-249-433-11	CARBON	22K	5%	1/4W
R161	1-249-441-11	CARBON	100K	5%	1/4W
R162	1-249-421-11	CARBON	2.2K	5%	1/4W
R163	1-249-435-11	CARBON	33K	5%	1/4W
R164	1-249-441-11	CARBON	100K	5%	1/4W
R169	1-249-437-11	CARBON	47K	5%	1/4W
R170	1-247-903-00	CARBON	1M	5%	1/4W
R172	1-249-429-11	CARBON	10K	5%	1/4W
R173	1-249-429-11	CARBON	10K	5%	1/4W
R176	1-247-903-00	CARBON	1M	5%	1/4W
R180	1-249-425-11	CARBON	4.7K	5%	1/4W
R190	1-249-441-11	CARBON	100K	5%	1/4W
R192	1-249-425-11	CARBON	4.7K	5%	1/4W
R193	1-247-807-31	CARBON	100	5%	1/4W
R194	1-247-807-31	CARBON	100	5%	1/4W
R195	1-249-425-11	CARBON	4.7K	5%	1/4W
R196	1-247-807-31	CARBON	100	5%	1/4W
R197	1-249-441-11	CARBON	100K	5%	1/4W
R198	1-249-435-11	CARBON	33K	5%	1/4W
R199	1-247-807-31	CARBON	100	5%	1/4W
R701	1-249-435-11	CARBON	33K	5%	1/4W
R702	1-249-427-11	CARBON	6.8K	5%	1/4W
R705	1-247-807-31	CARBON	100	5%	1/4W
R707	1-249-441-11	CARBON	100K	5%	1/4W
R714	1-249-417-11	CARBON	1K	5%	1/4W
R715	1-247-843-11	CARBON	3.3K	5%	1/4W
R716	1-249-425-11	CARBON	4.7K	5%	1/4W
R717	1-249-426-11	CARBON	5.6K	5%	1/4W
R718	1-247-843-11	CARBON	3.3K	5%	1/4W
R719	1-249-421-11	CARBON	2.2K	5%	1/4W
R720	1-249-429-11	CARBON	10K	5%	1/4W
R721	1-249-419-11	CARBON	1.5K	5%	1/4W
R722	1-249-419-11	CARBON	1.5K	5%	1/4W
R723	1-247-895-00	CARBON	470K	5%	1/4W
R725	1-249-427-11	CARBON	6.8K	5%	1/4W
R726	1-249-427-11	CARBON	6.8K	5%	1/4W
R728	1-249-429-11	CARBON	10K	5%	1/4W
R730	1-249-409-11	CARBON	220	5%	1/4W
R731	1-249-441-11	CARBON	100K	5%	1/4W
R732	1-249-417-11	CARBON	1K	5%	1/4W
R733	1-247-887-00	CARBON	220K	5%	1/4W
R751	1-249-435-11	CARBON	33K	5%	1/4W
R752	1-249-427-11	CARBON	6.8K	5%	1/4W
R755	1-247-807-31	CARBON	100	5%	1/4W
R757	1-249-441-11	CARBON	100K	5%	1/4W
R761	1-247-807-31	CARBON	100	5%	1/4W
R762	1-247-807-31	CARBON	100	5%	1/4W
R763	1-247-807-31	CARBON	100	5%	1/4W
R764	1-249-417-11	CARBON	1K	5%	1/4W
R765	1-247-843-11	CARBON	3.3K	5%	1/4W
R766	1-249-425-11	CARBON	4.7K	5%	1/4W
R767	1-249-426-11	CARBON	5.6K	5%	1/4W
R768	1-247-843-11	CARBON	3.3K	5%	1/4W
R769	1-249-421-11	CARBON	2.2K	5%	1/4W
R770	1-249-429-11	CARBON	10K	5%	1/4W
R771	1-249-419-11	CARBON	1.5K	5%	1/4W
R772	1-249-419-11	CARBON	1.5K	5%	1/4W
R773	1-247-895-00	CARBON	470K	5%	1/4W
R775	1-249-427-11	CARBON	6.8K	5%	1/4W
R776	1-249-427-11	CARBON	6.8K	5%	1/4W
R778	1-249-429-11	CARBON	10K	5%	1/4W
R780	1-249-409-11	CARBON	220	5%	1/4W
R781	1-249-441-11	CARBON	100K	5%	1/4W
R782	1-249-417-11	CARBON	1K	5%	1/4W
R783	1-247-887-00	CARBON	220K	5%	1/4W
R791	1-249-429-11	CARBON	10K	5%	1/4W
R792	1-247-887-00	CARBON	220K	5%	1/4W
R1031	1-247-903-00	CARBON	1M	5%	1/4W
R7001	1-249-421-11	CARBON	2.2K	5%	1/4W (AEP, G, UK)
R7002	1-249-429-11	CARBON	10K	5%	1/4W (AEP, G, UK)
R7003	1-249-441-11	CARBON	100K	5%	1/4W (AEP, G, UK)
R7004	1-249-441-11	CARBON	100K	5%	1/4W (AEP, G, UK)
R7005	1-249-441-11	CARBON	100K	5%	1/4W (AEP, G, UK)
R7006	1-249-441-11	CARBON	100K	5%	1/4W (AEP, G, UK)
R7007	1-249-441-11	CARBON	100K	5%	1/4W (AEP, G, UK)
R7008	1-247-807-31	CARBON	100	5%	1/4W (AEP, G, UK)
R7009	1-247-807-31	CARBON	100	5%	1/4W (AEP, G, UK)

Ref. No.	Part No.	Description			Remark
		< VIBRATOR >			
X7001	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHz)(AEP, G, UK)			
**********					
*	1-662-214-11	MOTOR (SLIDE) BOARD			
		**********			
		< CAPACITOR >			
C1801	1-162-306-11	CERAMIC	0.01uF	30%	16V
C1804	1-162-306-11	CERAMIC	0.01uF	30%	16V
C1805	1-126-964-11	ELECT	10uF	20%	50V
		< CONNECTOR >			
* CN1801	1-568-947-11	PIN, CONNECTOR 9P			
		< DIODE >			
D1801	8-719-010-47	DIODE UZ-6.2BSC			
D1805	8-719-987-63	DIODE 1N4148M			
		< IC >			
IC1801	8-759-274-09	IC BA6286N			
		< RESISTOR >			
R1801	1-249-401-11	CARBON	47	5%	1/4W
		< SWITCH >			
S1801	1-762-527-11	SWITCH, ROTARY			
**********					
*	1-662-212-11	MOTOR (TURN) BOARD			
		**********			
		< CAPACITOR >			
C1701	1-162-306-11	CERAMIC	0.01uF	30%	16V
C1702	1-126-964-11	ELECT	10uF	20%	50V
C1705	1-162-306-11	CERAMIC	0.01uF	30%	16V
		< CONNECTOR >			
CN1703	1-750-413-11	CONNECTOR, FFC/FPC 8P			
CN1704	1-506-469-11	PIN, CONNECTOR 4P			
		< DIODE >			
D1701	8-719-010-23	DIODE UZ-3.6BSB			
		< IC >			
IC1701	8-759-633-65	IC M54641L			
		< RESISTOR >			

Ref. No.	Part No.	Description			Remark
R1706	1-249-411-11	CARBON	330	5%	1/4W
R1707	1-249-401-11	CARBON	47	5%	1/4W
**********					
*	1-653-412-11	MOTOR BOARD			
		**********			
		< CAPACITOR >			
C199	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN191	1-568-944-11	PIN, CONNECTOR 6P			
CN192	1-770-011-41	CONNECTOR, BOARD TO BOARD 4P			
**********					
*	A-4390-894-A	PANEL A BOARD, COMPLETE (AEP, G)			
*	A-4390-898-A	PANEL A BOARD, COMPLETE (UK)			
*	A-4390-886-A	PANEL A BOARD, COMPLETE (EA, HK)			
*	A-4390-901-A	PANEL A BOARD, COMPLETE (JE)			
*	A-4392-034-A	PANEL A BOARD, COMPLETE (MY, SP)			
		**********			
*	4-932-810-11	CUSHION (FL)			
*	4-984-198-01	HOLDER (FL)			
		< CAPACITOR >			
C501	1-124-261-00	ELECT	10uF	20%	50V
C502	1-164-159-11	CERAMIC	0.1uF		50V
C503	1-162-282-31	CERAMIC	100PF	10%	50V
C504	1-164-159-11	CERAMIC	0.1uF		50V
C505	1-164-159-11	CERAMIC	0.1uF		50V
C506	1-164-159-11	CERAMIC	0.1uF		50V
C509	1-164-159-11	CERAMIC	0.1uF		50V
C510	1-126-163-11	ELECT	4.7uF	20%	50V
C511	1-136-153-00	FILM	0.01uF	5%	50V
C519	1-126-933-11	ELECT	100uF	20%	10V
C520	1-162-306-11	CERAMIC	0.01uF	30%	16V
C522	1-162-306-11	CERAMIC	0.01uF	30%	16V
C524	1-162-306-11	CERAMIC	0.01uF	30%	16V
C527	1-162-306-11	CERAMIC	0.01uF	30%	16V
C528	1-162-294-31	CERAMIC	0.001uF	10%	50V
C529	1-162-294-31	CERAMIC	0.001uF	10%	50V
C530	1-162-294-31	CERAMIC	0.001uF	10%	50V
C531	1-162-294-31	CERAMIC	0.001uF	10%	50V
C532	1-162-290-31	CERAMIC	470PF	10%	50V
C533	1-162-290-31	CERAMIC	470PF	10%	50V
C534	1-162-290-31	CERAMIC	470PF	10%	50V
C535	1-162-290-31	CERAMIC	470PF	10%	50V
C536	1-162-290-31	CERAMIC	470PF	10%	50V
C537	1-162-290-31	CERAMIC	470PF	10%	50V

PANEL A **PANEL B**

Ref. No.	Part No.	Description			Remark
C538	1-162-290-31	CERAMIC	470PF	10% 50V	
C539	1-162-290-31	CERAMIC	470PF	10% 50V	
C540	1-162-290-31	CERAMIC	470PF	10% 50V	
C541	1-162-290-31	CERAMIC	470PF	10% 50V	
C542	1-162-290-31	CERAMIC	470PF	10% 50V	
C543	1-162-290-31	CERAMIC	470PF	10% 50V	
C544	1-162-290-31	CERAMIC	470PF	10% 50V	
		< CONNECTOR >			
CN506	1-778-349-11	CONNECTOR, BOARD TO BOARD 8P			
CN507	1-778-350-11	CONNECTOR, BOARD TO BOARD 10P			
		< LED >			
D511	8-719-046-44	LED SEL5221S (MULTI JOG TOP)			
D512	8-719-313-48	LED SEL6210S-TH12 (ENTER/YES)			
		< FLUORESCENT INDICATOR TUBE >			
FL501	1-517-582-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC502	8-759-297-23	IC M66004M8FP			
IC503	8-759-297-23	IC M66004M8FP			
IC504	8-759-339-53	IC GP1U28XB			
		< COIL >			
L502	1-410-509-11	INDUCTOR 10uH			
		< TRANSISTOR >			
Q501	8-729-661-98	TRANSISTOR RT1P141SK-TP			
Q503	8-729-661-98	TRANSISTOR RT1P141SK-TP			
Q514	8-729-661-94	TRANSISTOR RT1N141SK-TP			
Q515	8-729-661-94	TRANSISTOR RT1N141SK-TP			
Q516	8-729-661-94	TRANSISTOR RT1N141SK-TP			
Q517	8-729-661-94	TRANSISTOR RT1N141SK-TP			
		< RESISTOR >			
R515	1-249-433-11	CARBON	22K	5% 1/4W	
R516	1-249-441-11	CARBON	100K	5% 1/4W	
R545	1-249-429-11	CARBON	10K	5% 1/4W	
R546	1-249-429-11	CARBON	10K	5% 1/4W	
R547	1-249-429-11	CARBON	10K	5% 1/4W	
R548	1-249-429-11	CARBON	10K	5% 1/4W	
R563	1-249-441-11	CARBON	100K	5% 1/4W	
R565	1-249-441-11	CARBON	100K	5% 1/4W	
R568	1-249-441-11	CARBON	100K	5% 1/4W	
R570	1-249-441-11	CARBON	100K	5% 1/4W	

Ref. No.	Part No.	Description			Remark
R575	1-249-409-11	CARBON	220	5% 1/4W	
R576	1-249-409-11	CARBON	220	5% 1/4W	
		< SWITCH >			
S551	1-467-938-11	ENCODER, ROTARY (+ ⏮ MULTI JOG ⏭ -, -TUNING/CURSOR +)			
S552	1-473-403-11	ENCODER, ROTARY (+ VOLUME -)			
**********					
*	A-4390-895-A	PANEL B BOARD, COMPLETE (AEP)			
*	A-4392-029-A	PANEL B BOARD, COMPLETE (G)			
*	A-4390-899-A	PANEL B BOARD, COMPLETE (UK)			
*	A-4392-035-A	PANEL B BOARD, COMPLETE (MY, SP)			
*	A-4390-902-A	PANEL B BOARD, COMPLETE (EA, HK)			
*	A-4392-026-A	PANEL B BOARD, COMPLETE (JE)			
		**********			
		< CAPACITOR >			
C507	1-126-157-11	ELECT	10uF	20% 16V	
C508	1-164-159-11	CERAMIC	0.1uF	50V	
C512	1-162-292-31	CERAMIC	680PF	10% 50V	
C513	1-162-292-31	CERAMIC	680PF	10% 50V	
C514	1-162-292-31	CERAMIC	680PF	10% 50V	
C515	1-162-292-31	CERAMIC	680PF	10% 50V	
C516	1-164-027-11	CERAMIC	22PF	5% 50V	
C517	1-164-026-11	CERAMIC	20PF	5% 50V	
C518	1-104-905-11	CAPACITOR	0.22F	5.5V	
C521	1-164-159-11	CERAMIC	0.1uF	50V	
C523	1-164-159-11	CERAMIC	0.1uF	50V	
C525	1-162-306-11	CERAMIC	0.01uF	30% 16V	
C526	1-164-159-11	CERAMIC	0.1uF	50V	
C551	1-164-159-11	CERAMIC	0.1uF	50V	
		< CONNECTOR >			
CN501	1-774-288-11	CONNECTOR, FFC/FPC 22P			
CN503	1-778-449-11	CONNECTOR, FFC/FPC 19P			
CN504	1-778-345-11	CONNECTOR, BOARD TO BOARD 8P			
CN505	1-778-346-11	CONNECTOR, BOARD TO BOARD 10P			
		< DIODE >			
D501	8-719-046-39	LED SEL5821A-TH15 (GROOVE)			
D502	8-719-046-44	LED SEL5221S (DBFB)			
D503	8-719-046-46	LED SEL5221S-TH8F (DISC SLOT INDICATOR(MD))			
D508	8-719-052-21	LED SEL58420C-TH8C (DISC 1)			
D509	8-719-052-21	LED SEL58420C-TH8C (DISC 2)			
D510	8-719-052-21	LED SEL58420C-TH8C (DISC 3)			
D513	8-719-046-44	LED SEL5221S (– TUNING/CURSOR +)			
D515	8-719-987-63	DIODE 1N4148M			

PANEL B

Ref. No.	Part No.	Description			Remark
D516	8-719-987-63	DIODE 1N4148M			
D518	8-719-987-63	DIODE 1N4148M			
D519	8-719-987-63	DIODE 1N4148M			
D520	8-719-010-48	DIODE UZ-6.8BS			
D521	8-719-200-82	DIODE 11ES2			
D551	8-719-057-28	LED SML78420-TP4 (DISC 1)			
D552	8-719-057-28	LED SML78420-TP4 (DISC 2)			
D553	8-719-057-28	LED SML78420-TP4 (DISC 3)			
D554	8-719-046-39	LED SEL5821A-TH15 (GROOVE)			
		< IC >			
IC501	8-759-441-75	IC uPD78058GC-411-3B9			
IC505	8-759-165-82	IC PST600E-T			
IC506	8-759-434-66	IC TD62506F-TP			
		< COIL >			
L501	1-410-509-11	INDUCTOR 10uH			
		< TRANSISTOR >			
Q502	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q507	8-729-620-05	TRANSISTOR 2SC2603-EF			
		< RESISTOR >			
R500	1-249-437-11	CARBON	47K	5%	1/4W
R501	1-249-401-11	CARBON	47	5%	1/4W
R502	1-249-403-11	CARBON	68	5%	1/4W
R503	1-249-403-11	CARBON	68	5%	1/4W
R504	1-247-807-31	CARBON	100	5%	1/4W
R505	1-249-407-11	CARBON	150	5%	1/4W
R506	1-249-409-11	CARBON	220	5%	1/4W
R507	1-249-411-11	CARBON	330	5%	1/4W
R508	1-249-411-11	CARBON	330	5%	1/4W
R509	1-249-413-11	CARBON	470	5%	1/4W
R510	1-249-415-11	CARBON	680	5%	1/4W
R511	1-249-417-11	CARBON	1K	5%	1/4W
R512	1-249-419-11	CARBON	1.5K	5%	1/4W
R513	1-249-421-11	CARBON	2.2K	5%	1/4W
R514	1-247-843-11	CARBON	3.3K	5%	1/4W
R517	1-249-401-11	CARBON	47	5%	1/4W
R519	1-249-427-11	CARBON	6.8K	5%	1/4W
R520	1-247-843-11	CARBON	3.3K	5%	1/4W
R521	1-249-421-11	CARBON	2.2K	5%	1/4W
R522	1-249-419-11	CARBON	1.5K	5%	1/4W
R523	1-249-417-11	CARBON	1K	5%	1/4W
R524	1-249-415-11	CARBON	680	5%	1/4W
R525	1-249-413-11	CARBON	470	5%	1/4W
R526	1-249-429-11	CARBON	10K	5%	1/4W (AEP, UK, JE)
R527	1-249-429-11	CARBON	10K	5%	1/4W (G, JE)
R528	1-249-429-11	CARBON	10K	5%	1/4W (MY, SP, EA, HK, JE)
R530	1-249-411-11	CARBON	330	5%	1/4W
R531	1-249-411-11	CARBON	330	5%	1/4W
R533	1-249-409-11	CARBON	220	5%	1/4W
R534	1-249-407-11	CARBON	150	5%	1/4W
R535	1-247-807-31	CARBON	100	5%	1/4W
R536	1-249-403-11	CARBON	68	5%	1/4W
R537	1-249-403-11	CARBON	68	5%	1/4W
R538	1-249-403-11	CARBON	68	5%	1/4W
R539	1-249-401-11	CARBON	47	5%	1/4W
R540	1-249-419-11	CARBON	1.5K	5%	1/4W
R541	1-249-419-11	CARBON	1.5K	5%	1/4W
R542	1-249-413-11	CARBON	470	5%	1/4W
R543	1-249-419-11	CARBON	1.5K	5%	1/4W
R544	1-249-409-11	CARBON	220	5%	1/4W
R551	1-249-429-11	CARBON	10K	5%	1/4W
R559	1-249-433-11	CARBON	22K	5%	1/4W
R560	1-249-429-11	CARBON	10K	5%	1/4W
R561	1-249-425-11	CARBON	4.7K	5%	1/4W
R562	1-249-393-11	CARBON	10	5%	1/4W
R564	1-249-437-11	CARBON	47K	5%	1/4W
R566	1-249-403-11	CARBON	68	5%	1/4W
R567	1-249-429-11	CARBON	10K	5%	1/4W
R569	1-249-429-11	CARBON	10K	5%	1/4W
R571	1-249-441-11	CARBON	100K	5%	1/4W
R573	1-249-409-11	CARBON	220	5%	1/4W
R574	1-249-403-11	CARBON	68	5%	1/4W
R580	1-249-403-11	CARBON	68	5%	1/4W
R581	1-249-403-11	CARBON	68	5%	1/4W
R582	1-249-403-11	CARBON	68	5%	1/4W
R583	1-249-403-11	CARBON	68	5%	1/4W
R584	1-247-807-31	CARBON	100	5%	1/4W
R585	1-247-807-31	CARBON	100	5%	1/4W
R586	1-247-807-31	CARBON	100	5%	1/4W
R587	1-247-807-31	CARBON	100	5%	1/4W
R590	1-247-807-31	CARBON	100	5%	1/4W
R593	1-247-807-31	CARBON	100	5%	1/4W
R594	1-247-807-31	CARBON	100	5%	1/4W
R595	1-247-807-31	CARBON	100	5%	1/4W
R596	1-247-807-31	CARBON	100	5%	1/4W
R597	1-247-807-31	CARBON	100	5%	1/4W
R598	1-247-807-31	CARBON	100	5%	1/4W
R599	1-247-807-31	CARBON	100	5%	1/4W
R600	1-247-807-31	CARBON	100	5%	1/4W
R606	1-247-807-31	CARBON	100	5%	1/4W (AEP, G, UK)
R607	1-247-807-31	CARBON	100	5%	1/4W

PANEL B | POWER

Ref. No.	Part No.	Description			Remark
					(AEP, G, UK)
R609	1-247-807-31	CARBON	100	5%	1/4W
R610	1-247-807-31	CARBON	100	5%	1/4W
R611	1-247-807-31	CARBON	100	5%	1/4W
R612	1-247-807-31	CARBON	100	5%	1/4W
R613	1-247-807-31	CARBON	100	5%	1/4W
R615	1-247-807-31	CARBON	100	5%	1/4W
R616	1-247-807-31	CARBON	100	5%	1/4W
R617	1-247-807-31	CARBON	100	5%	1/4W
R618	1-247-807-31	CARBON	100	5%	1/4W
R619	1-247-807-31	CARBON	100	5%	1/4W
R620	1-247-807-31	CARBON	100	5%	1/4W
R621	1-247-807-31	CARBON	100	5%	1/4W
R623	1-249-429-11	CARBON	10K	5%	1/4W
R624	1-249-429-11	CARBON	10K	5%	1/4W
R625	1-249-429-11	CARBON	10K	5%	1/4W
R626	1-249-429-11	CARBON	10K	5%	1/4W
		< SWITCH >			
S501	1-571-760-11	SWITCH, KEY BOARD (⏏ (MD))			
S502	1-571-760-11	SWITCH, KEY BOARD (CD SYNC)			
S503	1-571-760-11	SWITCH, KEY BOARD (● REC)			
S504	1-571-760-11	SWITCH, KEY BOARD (PRESET EQ)			
S505	1-571-760-11	SWITCH, KEY BOARD (CHARACTER)			
S506	1-571-760-11	SWITCH, KEY BOARD (ENTER/YES)			
S507	1-571-760-11	SWITCH, KEY BOARD (◀◀)			
S508	1-554-303-21	SWITCH, TACTILE (▶▶)			
S509	1-571-760-11	SWITCH, KEY BOARD (EDIT/NO)			
S510	1-554-303-21	SWITCH, TACTILE (TIMER CONTROL)			
S511	1-554-303-21	SWITCH, TACTILE (TIMER SET)			
S512	1-554-303-21	SWITCH, TACTILE (DISPLAY)			
S513	1-554-303-21	SWITCH, TACTILE (1/ALL)			
S514	1-554-303-21	SWITCH, TACTILE (STEREO/MONO,REPEAT)			
S515	1-554-303-21	SWITCH, TACTILE (TUNING MODE,PLAY MODE)			
S516	1-571-760-11	SWITCH, KEY BOARD (POWER)			
S517	1-571-760-11	SWITCH, KEY BOARD (■ (MD))			
S518	1-571-760-11	SWITCH, KEY BOARD (❚❚ (MD))			
S519	1-571-760-11	SWITCH, KEY BOARD (► (MD))			
S520	1-554-303-21	SWITCH, TACTILE (TUNER/BAND)			
S521	1-554-303-21	SWITCH, TACTILE (FUNCTION)			
S522	1-554-303-21	SWITCH, TACTILE (LOOP)			
S523	1-554-303-21	SWITCH, TACTILE (EX-CHANGE)			
S524	1-554-303-21	SWITCH, TACTILE (DISC SKIP)			
S525	1-554-303-21	SWITCH, TACTILE (► (CD))			
S526	1-554-303-21	SWITCH, TACTILE (❚❚ (CD))			
S527	1-554-303-21	SWITCH, TACTILE (■ (CD))			
S528	1-554-303-21	SWITCH, TACTILE (⏏ (CD))			
S529	1-571-760-11	SWITCH, KEY BOARD (DBFB)			
S530	1-571-760-11	SWITCH, KEY BOARD (DISC 1)			
S531	1-571-760-11	SWITCH, KEY BOARD (DISC 2)			
S532	1-571-760-11	SWITCH, KEY BOARD (DISC 3)			
S533	1-571-760-11	SWITCH, KEY BOARD (GROOVE)			
		< VIBRATOR >			
X501	1-579-233-11	VIBRATOR, CERAMIC (5MHz)			
X502	1-567-098-41	VIBRATOR, CRYSTAL (32kHz)			
**********					
*	A-4390-875-A	POWER BOARD, COMPLETE (AEP, G)			
*	A-4390-879-A	POWER BOARD, COMPLETE (UK)			
*	A-4390-883-A	POWER BOARD, COMPLETE (EA, HK, JE)			
*	A-4392-031-A	POWER BOARD, COMPLETE (MY, SP)			
		**********			
*	3-309-144-21	HEAT SINK			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
	1-533-293-11	FUSE HOLDER			
		< CAPACITOR >			
C120	1-124-903-11	ELECT	1uF	20%	50V
C121	1-126-964-11	ELECT	10uF	20%	50V
C122	1-126-964-11	ELECT	10uF	20%	50V
C123	1-164-159-11	CERAMIC	0.1uF		50V
C124	1-110-489-11	CAPACITOR	1F		5.5V
C125	1-124-903-11	ELECT	1uF	20%	50V
C126	1-164-159-11	CERAMIC	0.1uF		50V
C127	1-126-933-11	ELECT	100uF	20%	16V
C139	1-162-306-11	CERAMIC	0.01uF	30%	16V
C801	1-162-306-11	CERAMIC	0.01uF	30%	16V
C802	1-126-967-11	ELECT	47uF	20%	10V
C803	1-162-306-11	CERAMIC	0.01uF	30%	16V
C804	1-126-933-11	ELECT	100uF	20%	16V
C805	1-124-443-00	ELECT	100uF	20%	10V
C806	1-164-159-11	CERAMIC	0.1uF		50V (AEP, G, UK)
C807	1-164-159-11	CERAMIC	0.1uF		50V (AEP, G, UK)
C808	1-124-443-00	ELECT	100uF	20%	10V
C809	1-126-967-11	ELECT	47uF	20%	50V
C810	1-162-306-11	CERAMIC	0.01uF	30%	16V
C811	1-126-967-11	ELECT	47uF	20%	10V
C812	1-162-306-11	CERAMIC	0.01uF	30%	16V
C813	1-126-967-11	ELECT	47uF	20%	10V
C814	1-126-967-11	ELECT	47uF	20%	10V
C815	1-126-916-11	ELECT	1000uF	20%	6.3V
C816	1-126-964-11	ELECT	10uF	20%	50V
C817	1-126-967-11	ELECT	47uF	20%	10V
C818	1-126-967-11	ELECT	47uF	20%	10V

Ref. No.	Part No.	Description			Remark
C819	1-126-967-11	ELECT	47uF	20%	50V
C820	1-126-974-11	ELECT	3300uF	20%	50V
C821	1-126-974-11	ELECT	3300uF	20%	50V
C822	1-162-306-11	CERAMIC	0.01uF	30%	16V
C823	1-162-306-11	CERAMIC	0.01uF	30%	16V
C824	1-126-925-11	ELECT	470uF	20%	10V
C825	1-126-925-11	ELECT	470uF	20%	10V
C826	1-162-306-11	CERAMIC	0.01uF	30%	16V
C827	1-126-969-11	ELECT	220uF	20%	50V
C828	1-126-768-11	ELECT	2200uF	20%	16V
C829	1-126-967-11	ELECT	47uF	20%	10V
C830	1-126-967-11	ELECT	47uF	20%	10V
C831	1-162-306-11	CERAMIC	0.01uF	30%	16V
C832	1-126-027-11	ELECT	1000uF	20%	25V
C836	1-162-306-11	CERAMIC	0.01uF	30%	16V
C837	1-162-306-11	CERAMIC	0.01uF	30%	16V
C838	1-126-971-11	ELECT	470uF	20%	50V
C840	1-164-159-11	CERAMIC	0.1uF		50V
C841	1-164-159-11	CERAMIC	0.1uF		50V
C842	1-164-159-11	CERAMIC	0.1uF		50V
C843	1-164-159-11	CERAMIC	0.1uF		50V
C844	1-126-001-11	ELECT	3300uF	20%	10V
C845	1-124-360-00	ELECT	1000uF	20%	16V
C846	1-124-360-00	ELECT	1000uF	20%	16V
C847	1-115-364-11	ELECT	22000uF	20%	16V
C848	1-136-165-00	FILM	0.1uF	5%	50V
C849	1-136-165-00	FILM	0.1uF	5%	50V
C881	1-126-964-11	ELECT	10uF	20%	50V
C882	1-126-154-11	ELECT	47uF	20%	6.3V
C883	1-126-967-11	ELECT	47uF	20%	50V
C884	1-162-306-11	CERAMIC	0.01uF	30%	16V
C885	1-126-964-11	ELECT	10uF	20%	50V
C891	1-126-964-11	ELECT	10uF	20%	50V
C9001	1-101-005-00	CERAMIC	22000PF		50V
C9001	1-102-123-00	CERAMIC	0.0033uF	10%	50V
		< CONNECTOR >			
CN802	1-691-773-11	PLUG (MICRO CONNECTOR) 11P			
CN803	1-691-772-11	PLUG (MICRO CONNECTOR) 10P			
CN804	1-770-493-11	CONNECTOR, BOARD TO BOARD 9P			
CN805	1-770-167-11	CONNECTOR, FFC/FPC 19P			
CN807	1-770-649-11	CONNECTOR, FFC/FPC 21P			
CN808	1-770-651-11	CONNECTOR, FFC/FPC 23P			
* CN881	1-564-506-11	PLUG, CONNECTOR 3P			
		< DIODE >			
D113	8-719-987-63	DIODE 1N4148M			
D114	8-719-987-63	DIODE 1N4148M			
D115	8-719-987-63	DIODE 1N4148M			

Ref. No.	Part No.	Description	Remark
D116	8-719-987-63	DIODE 1N4148M	
D117	8-719-987-63	DIODE 1N4148M	
D801	8-719-014-74	DIODE UZP-6.2B	
D802	8-719-200-82	DIODE 11ES2	
D803	8-719-011-16	DIODE UZ-33BSA	
D804	8-719-109-98	DIODE RD6.8ES-B3	
D805	8-719-010-43	DIODE UZ-5.6BSC	
D806	8-719-010-47	DIODE UZ-6.2BSC	
D807	8-719-200-82	DIODE 11ES2	
D808	8-719-010-43	DIODE UZ-5.6BSC	
D809	8-719-010-43	DIODE UZ-5.6BSC	
D810	8-719-200-82	DIODE 11ES2	
D811	8-719-200-82	DIODE 11ES2	
D812	8-719-200-82	DIODE 11ES2	
D813	8-719-028-23	DIODE D3SBA20-4101	
D814	8-719-987-63	DIODE 1N4148M	
D815	8-719-987-63	DIODE 1N4148M	
D816	8-719-200-82	DIODE 11ES2 (AEP, G, UK, EA, HK, JE)	
D816	8-719-200-77	DIODE 10E2N (MY, SP)	
D817	8-719-200-82	DIODE 11ES2 (AEP, G, UK, EA, HK, JE)	
D817	8-719-200-77	DIODE 10E2N (MY, SP)	
D818	8-719-200-82	DIODE 11ES2 (AEP, G, UK, EA, HK, JE)	
D818	8-719-200-77	DIODE 10E2N (MY, SP)	
D819	8-719-200-82	DIODE 11ES2 (AEP, G, UK, EA, HK, JE)	
D819	8-719-200-77	DIODE 10E2N (MY, SP)	
D820	8-719-200-82	DIODE 11ES2 (AEP, G, UK, EA, HK, JE)	
D820	8-719-200-77	DIODE 10E2N (MY, SP)	
D821	8-719-200-82	DIODE 11ES2 (AEP, G, UK, EA, HK, JE)	
D821	8-719-200-77	DIODE 10E2N (MY, SP)	
D822	8-719-200-77	DIODE 10E2N	
D823	8-719-200-77	DIODE 10E2N	
D824	8-719-200-82	DIODE 11ES2 (AEP, G, UK, EA, HK, JE)	
D824	8-719-200-77	DIODE 10E2N (MY, SP)	
D825	8-719-200-82	DIODE 11ES2 (AEP, G, UK, EA, HK, JE)	
D825	8-719-200-77	DIODE 10E2N (MY, SP)	
D881	8-719-987-63	DIODE 1N4148M	
D883	8-719-200-82	DIODE 11ES2	
D891	8-719-200-82	DIODE 11ES2	
D892	8-719-010-55	DIODE UZ-7.5BSC	
D893	8-719-987-63	DIODE 1N4148M	
		< GROUND PLATE >	
* E801	4-942-204-01	PLATE, GROUND	
		< FUSE >	
⚠F801	1-532-506-51	FUSE (6.3A/250V)	
⚠F802	1-532-506-51	FUSE (6.3A/250V)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

POWER

Ref. No.	Part No.	Description	Remark
		< IC >	
IC102	8-759-917-18	IC SN74HCU04AN	
IC103	8-759-327-15	IC M62005L	
IC801	8-759-231-58	IC TA7812S	
IC821	8-759-290-19	IC BA3960	
		< COIL >	
L103	1-412-473-21	INDUCTOR 0uH	
		< TRANSISTOR >	
Q111	8-729-661-98	TRANSISTOR RT1P141SK-TP	
Q113	8-729-661-94	TRANSISTOR RT1N141SK-TP	
Q801	8-729-209-15	TRANSISTOR 2SD2012	
Q802	8-729-018-59	TRANSISTOR 2SB1375-LC	
Q803	8-729-209-15	TRANSISTOR 2SD2012	
Q804	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q805	8-729-209-15	TRANSISTOR 2SD2012	
Q806	8-729-209-15	TRANSISTOR 2SD2012	
Q807	8-729-661-96	TRANSISTOR RT1N441SK-TP	
Q808	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q809	8-729-209-15	TRANSISTOR 2SD2012	
Q810	8-729-661-94	TRANSISTOR RT1N141SK-TP	
Q811	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q812	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q881	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q882	8-729-661-98	TRANSISTOR RT1P141SK-TP	
Q883	8-729-801-93	TRANSISTOR 2SD1387	
Q884	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q891	8-729-801-93	TRANSISTOR 2SD1387	
Q892	8-729-661-96	TRANSISTOR RT1N441SK-TP	
Q893	8-729-119-76	TRANSISTOR 2SA1175-HFE	
		< RESISTOR >	
R114	1-249-417-11	CARBON 1K 5% 1/4W	
R115	1-249-433-11	CARBON 22K 5% 1/4W	
R116	1-249-437-11	CARBON 47K 5% 1/4W	
R117	1-247-891-00	CARBON 330K 5% 1/4W	
R118	1-249-417-11	CARBON 1K 5% 1/4W	
R128	1-247-807-31	CARBON 100 5% 1/4W	
R134	1-249-437-11	CARBON 47K 5% 1/4W	
R150	1-247-895-00	CARBON 470K 5% 1/4W	
R301	1-247-807-31	CARBON 100 5% 1/4W	
R302	1-247-807-31	CARBON 100 5% 1/4W	
R307	1-247-807-31	CARBON 100 5% 1/4W	
R801	1-249-413-11	CARBON 470 5% 1/4W	
R802	1-249-429-11	CARBON 10K 5% 1/4W	
R803	1-249-413-11	CARBON 470 5% 1/4W	
R804	1-249-429-11	CARBON 10K 5% 1/4W	

Ref. No.	Part No.	Description	Remark
R805	1-249-415-11	CARBON 680 5% 1/4W	
R806	1-247-850-11	CARBON 6.2K 5% 1/4W	
R807	1-249-416-11	CARBON 820 5% 1/4W	
R808	1-247-843-11	CARBON 3.3K 5% 1/4W	
R809	1-249-429-11	CARBON 10K 5% 1/4W	
R810	1-247-843-11	CARBON 3.3K 5% 1/4W	
R811	1-249-421-11	CARBON 2.2K 5% 1/4W	
R812	1-249-425-11	CARBON 4.7K 5% 1/4W	
R813	1-249-433-11	CARBON 22K 5% 1/4W	
R814	1-249-421-11	CARBON 2.2K 5% 1/4W	
R815	1-249-413-11	CARBON 470 5% 1/4W	
R816	1-249-413-11	CARBON 470 5% 1/4W	
R817	1-249-413-11	CARBON 470 5% 1/4W	
⚠R818	1-217-638-00	FUSIBLE 1.5 5% 1/4W	F
⚠R819	1-217-642-11	FUSIBLE 6.8 5% 1/4W	F
⚠R820	1-217-642-11	FUSIBLE 6.8 5% 1/4W	F
R821	1-249-417-11	CARBON 1K 5% 1/4W	
R822	1-249-417-11	CARBON 1K 5% 1/4W	
⚠R823	1-217-642-11	FUSIBLE 6.8 5% 1/4W	F
⚠R824	1-219-124-11	FUSIBLE 0.68 5% 1/4W	F
⚠R825	1-217-642-11	FUSIBLE 6.8 5% 1/4W	F
⚠R826	1-217-637-00	FUSIBLE 1 5% 1/4W	F
R831	1-247-807-31	CARBON 100 5% 1/4W	
⚠R832	1-212-857-00	FUSIBLE 10 5% 1/4W	F
R840	1-249-441-11	CARBON 100K 5% 1/4W	
R841	1-249-441-11	CARBON 100K 5% 1/4W	
R842	1-249-441-11	CARBON 100K 5% 1/4W	
R843	1-249-441-11	CARBON 100K 5% 1/4W	
R849	1-249-429-11	CARBON 10K 5% 1/4W	
R881	1-249-429-11	CARBON 10K 5% 1/4W	
R882	1-249-425-11	CARBON 4.7K 5% 1/4W	
R883	1-249-429-11	CARBON 10K 5% 1/4W	
R884	1-249-441-11	CARBON 100K 5% 1/4W	
R885	1-249-417-11	CARBON 1K 5% 1/4W	
R886	1-249-437-11	CARBON 47K 5% 1/4W	
R887	1-249-437-11	CARBON 47K 5% 1/4W	
R893	1-247-807-31	CARBON 100 5% 1/4W	
R894	1-249-441-11	CARBON 100K 5% 1/4W	
R895	1-249-429-11	CARBON 10K 5% 1/4W	
R896	1-249-429-11	CARBON 10K 5% 1/4W	
R897	1-249-421-11	CARBON 2.2K 5% 1/4W	
		< SWITCH >	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
S101	1-572-184-11	SWITCH, KEYBOARD (RESET)			
**********					
*	A-4390-896-A	RELAY BOARD, COMPLETE (AEP, G)			
*	A-4390-900-A	RELAY BOARD, COMPLETE (UK)			
*	A-4390-888-A	RELAY BOARD, COMPLETE (EA, HK, JE)			
*	A-4392-036-A	RELAY BOARD, COMPLETE (MY, SP)			
		**********			
		< CAPACITOR >			
C741	1-124-907-11	ELECT	10uF	20%	50V
C791	1-124-907-11	ELECT	10uF	20%	50V
C851	1-162-306-11	CERAMIC	0.01uF	30%	16V
C852	1-124-907-11	ELECT	10uF	20%	50V
C853	1-164-159-11	CERAMIC	0.1uF		50V
C854	1-164-159-11	CERAMIC	0.1uF		50V
C855	1-164-159-11	CERAMIC	0.1uF		50V
C856	1-162-290-31	CERAMIC	470PF	10%	50V
C857	1-162-290-31	CERAMIC	470PF	10%	50V
C858	1-162-290-31	CERAMIC	470PF	10%	50V
C859	1-162-290-31	CERAMIC	470PF	10%	50V
C860	1-162-286-31	CERAMIC	220PF	10%	50V
C861	1-162-290-31	CERAMIC	470PF	10%	50V
C871	1-162-306-11	CERAMIC	0.01uF	30%	16V
C872	1-126-933-11	ELECT	100uF	20%	16V
		< CONNECTOR >			
CN851	1-770-649-11	CONNECTOR, FFC/FPC 21P			
CN852	1-770-167-11	CONNECTOR, FFC/FPC 19P			
* CN853	1-568-936-11	PIN, CONNECTOR 9P			
* CN854	1-568-935-11	PIN, CONNECTOR 8P			
		< IC >			
IC851	8-759-433-62	IC uPD78055GC-055-3B9			
IC852	8-749-921-12	IC GP1F32T (CD DIGITAL OUT OPTICAL)			
		< COIL >			
L851	1-410-509-11	INDUCTOR	10uH		
		< RESISTOR >			
R741	1-249-441-11	CARBON	100K	5%	1/4W
R791	1-249-441-11	CARBON	100K	5%	1/4W
R851	1-247-807-31	CARBON	100	5%	1/4W
R852	1-247-807-31	CARBON	100	5%	1/4W
R856	1-247-807-31	CARBON	100	5%	1/4W
R857	1-247-807-31	CARBON	100	5%	1/4W
R858	1-247-807-31	CARBON	100	5%	1/4W
R859	1-247-807-31	CARBON	100	5%	1/4W
R860	1-247-807-31	CARBON	100	5%	1/4W
R861	1-247-807-31	CARBON	100	5%	1/4W

Ref. No.	Part No.	Description			Remark
R862	1-247-807-31	CARBON	100	5%	1/4W
R867	1-247-843-11	CARBON	3.3K	5%	1/4W
R868	1-247-843-11	CARBON	3.3K	5%	1/4W
R869	1-247-843-11	CARBON	3.3K	5%	1/4W
R870	1-247-843-11	CARBON	3.3K	5%	1/4W
R871	1-249-429-11	CARBON	10K	5%	1/4W
R872	1-249-429-11	CARBON	10K	5%	1/4W
R874	1-249-429-11	CARBON	10K	5%	1/4W
R875	1-249-429-11	CARBON	10K	5%	1/4W
R876	1-249-429-11	CARBON	10K	5%	1/4W
R877	1-249-429-11	CARBON	10K	5%	1/4W
R878	1-249-429-11	CARBON	10K	5%	1/4W
R879	1-249-429-11	CARBON	10K	5%	1/4W
R880	1-249-429-11	CARBON	10K	5%	1/4W
R881	1-249-429-11	CARBON	10K	5%	1/4W
R882	1-249-429-11	CARBON	10K	5%	1/4W
R883	1-249-429-11	CARBON	10K	5%	1/4W
		< VIBRATOR >			
X851	1-579-233-11	VIBRATOR, CERAMIC (5MHz)			
**********					
*	1-662-213-11	SENSOR BOARD			
		**********			
		< IC >			
IC1702	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391			(TABLE SENSOR)
IC1703	8-749-924-30	IC PHOTO REFLECTOR GP2S28(DISC SENSOR)			
		< RESISTOR >			
R1701	1-249-416-11	CARBON	820	5%	1/4W
R1702	1-249-407-11	CARBON	150	5%	1/4W
**********					
*	A-4303-528-A	TCB BOARD, COMPLETE (JE)			
*	A-4303-529-A	TCB BOARD, COMPLETE (AEP, UK)			
*	A-4303-530-A	TCB BOARD, COMPLETE (G)			
		**********			
		< CAPACITOR >			
C1	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C2	1-126-967-11	ELECT	47uF	20%	16V
C3	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C5	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C6	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C7	1-101-004-00	CERAMIC	0.01uF		50V (EXCEPT AEP, G, UK)
C8	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C9	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C10	1-163-031-11	CERAMIC CHIP	0.01uF		50V

TCB

Ref. No.	Part No.	Description			Remark
C11	1-163-038-00	CERAMIC CHIP	0.1uF		25V (EA, MY, SP, HK, JE)
C11	1-216-295-00	METAL CHIP	0	5%	1/10W (G)
C14	1-163-038-00	CERAMIC CHIP	0.1uF		25V (EA, MY, SP, HK, JE)
C15	1-136-162-00	CERAMIC	0.056uF		50V (EA, MY, SP, HK, JE)
C16	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C17	1-163-031-11	CERAMIC CHIP	0.01uF		50V (EA, MY, SP, HK, JE)
C18	1-163-088-00	CERAMIC CHIP	5PF		50V (EA, MY, SP, HK, JE)
C19	1-163-249-11	CERAMIC CHIP	82PF	5%	50V (AEP, UK)
C21	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C22	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C23	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C24	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C26	1-126-967-11	ELECT	47uF	20%	16V
C28	1-126-967-11	ELECT	47uF	20%	16V
C29	1-162-306-11	CERAMIC	0.01uF	30%	16V
C30	1-124-925-11	ELECT	2.2uF	20%	100V
C31	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C32	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C33	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C34	1-163-091-00	CERAMIC CHIP	8PF		50V (EXCEPT AEP, UK)
C34	1-163-229-11	CERAMIC CHIP	12PF	5%	50V (AEP, UK)
C35	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C36	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C37	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C38	1-162-211-31	CERAMIC	33PF	5%	50V (EA, MY, SP, HK, JE)
C39	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C40	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C41	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C42	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C43	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C44	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C45	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C46	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C47	1-126-967-11	ELECT	47uF	20%	16V
C48	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C49	1-124-902-00	ELECT	0.47uF	20%	50V
C50	1-124-903-11	ELECT	1.0uF	20%	50V
C51	1-124-903-11	ELECT	1.0uF	20%	50V
C52	1-126-964-11	ELECT	10uF	20%	50V
C53	1-126-964-11	ELECT	10uF	20%	50V
C54	1-104-396-11	ELECT	10uF	20%	16V
C55	1-104-396-11	ELECT	10uF	20%	16V
C56	1-104-396-11	ELECT	10uF	20%	16V
C57	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C58	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C59	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V (AEP, G, UK)
C59	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V (EXCEPT AEP, G, UK)
C60	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V (AEP, G, UK)
C60	1-163-989-11	CERAMIC CHIP	0.033uF		25V (EXCEPT AEP, G, UK)
C61	1-126-301-11	ELECT	1uF	20%	50V
C62	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C63	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C64	1-126-967-11	ELECT	47uF	20%	16V
C65	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C66	1-126-162-11	ELECT	3.3uF	20%	50V
C67	1-126-933-11	ELECT	100uF	20%	10V
C68	1-162-306-11	CERAMIC	0.01uF	30%	16V
C71	1-162-306-11	CERAMIC	0.01uF	30%	16V
C72	1-126-967-11	ELECT	47uF	20%	16V
C120	1-163-105-00	CERAMIC CHIP	33PF	5%	50V (AEP, G, UK)
		< FILTER >			
CF1	1-567-389-11	FILTER,CERAMIC			
CF2	1-760-393-11	FILTER,CERAMIC (AEP, G, UK)			
CF3	1-567-389-11	FILTER,CERAMIC (EXCEPT AEP, G, UK)			
CF3	1-760-393-11	FILTER,CERAMIC (AEP, G, UK)			
		< CONNECTOR >			
CN1	1-774-292-11	SOCKET,CONNECTOR 15P			
		< TRIMMER >			
CV1	1-141-227-00	TRIMMER	20PF (EA, MY, SP, HK, JE)		
CV2	1-141-227-00	TRIMMER	20PF (EA, MY, SP, HK, JE)		
		< DIODE >			
D1	8-719-976-30	DIODE KV1560N (EA, MY, SP, HK, JE)			
D21	8-719-976-99	DIODE UDZ-TE-17-5.1B			
D41	8-719-016-74	DIODE 1SS352-TPH3			
		< FRONTEND >			

Ref. No.	Part No.	Description	Remark
FE1	1-233-532-11	FRONTEND (EA, MY, SP, HK)	
FE1	1-233-542-11	FRONTEND (4GAND) (AEP, G, UK)	
FE1	1-693-251-11	FRONTEND (JE)	
FE2	1-233-514-11	ENCAPSULATED COMPONENT (AEP, UK)	
FE2	1-239-260-11	ENCAPSULATED COMPONENT (G)	
FE2	1-239-262-11	ENCAPSULATED COMPONENT	(EA, MY, SP, HK, JE)
		< IC >	
IC21	8-759-288-54	IC LC72130	
IC41	8-759-176-03	IC LA1835	
		< IFT >	
IFT41	1-409-636-11	TRANSFORMER,IF (CERAMIC FILTER)	
		< JUMPER RESISTOR >	
JR1	1-216-295-00	CONDUCTOR, CHIP (2012) (G)	
JR2	1-216-295-00	CONDUCTOR, CHIP (2012) (AEP, UK)	
JR3	1-216-295-00	CONDUCTOR, CHIP (2012) (G)	
JR6	1-216-295-00	CONDUCTOR, CHIP (2012)	(AEP, G, UK)
JR7	1-216-295-00	CONDUCTOR, CHIP (2012) (G)	
JR8	1-216-295-00	CONDUCTOR, CHIP (2012) (AEP, UK)	
JR9	1-216-295-00	CONDUCTOR, CHIP (2012) (AEP, UK)	
JR45	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR46	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR47	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR48	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR49	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR50	1-216-295-00	CONDUCTOR, CHIP (2012)	(EA, MY, SP, HK, JE)
JR51	1-216-295-00	CONDUCTOR, CHIP (2012)	(AEP, UK, EA, MY, SP, HK, JE)
JR52	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR53	1-216-296-00	CONDUCTOR, CHIP (3216)	(AEP, UK, EA, MY, SP, HK, JE)
JR54	1-216-295-00	CONDUCTOR, CHIP (2012)	
JW4	1-249-413-11	CARBON 470 5% 1/4W	(AEP, G, UK)
JW5	1-249-413-11	CARBON 470 5% 1/4W	(AEP, G, UK)
		< COIL >	
L1	1-410-521-11	MICROINDUCTOR 100uH	(EA, MY, SP, HK,JE)
L2	1-414-142-11	MICROINDUCTOR 1uH (AEP, G, UK)	
L3	1-410-521-11	MICROINDUCTOR 100uH	
L4	1-410-515-11	INDUCTOR 33uH (AEP, G, UK)	
L41	1-407-500-00	MICROINDUCTOR 4.7mH (AEP, UK)	
L41	1-410-119-11	MICROINDUCTOR(ELTYPE) 1mH	(EXCEPT AEP, UK)
		< LOW PASS FILTER >	
LPF41	1-239-845-11	FILTER,LOWPASS	
LPF42	1-239-845-11	FILTER,LOWPASS	
		< TRANSISTOR >	
Q1	8-729-201-27	TRANSISTOR 2SC2715Y-TE85L	
Q2	8-729-201-27	TRANSISTOR 2SC2715Y-TE85L	
Q3	8-729-201-27	TRANSISTOR 2SC2715Y-TE85L	
Q4	8-729-201-27	TRANSISTOR 2SC2715Y-TE85L	
Q5	8-729-424-08	TRANSISTOR MUN2111T1	
Q8	8-729-033-67	TRANSISTOR 2SK211-Y-TE85L	(EA, MY, SP, HK, JE)
Q9	8-729-216-22	TRANSISTOR 2SA812-M5M6	(AEP, UK, EA, MY, SP, HK, JE)
Q10	8-729-216-22	TRANSISTOR 2SA812-M5M6	(EA, MY, SP, HK, JE)
Q11	8-729-421-22	TRANSISTOR MUN2211T1 (AEP, UK)	
Q12	8-729-421-22	TRANSISTOR MUN2211T1	(AEP, UK, EA, MY, SP, HK, JE)
Q13	8-729-421-22	TRANSISTOR MUN2211T1	(AEP, UK, EA, MY, SP, HK, JE)
Q14	8-729-421-22	TRANSISTOR MUN2211T1	(AEP, UK, EA, MY, SP, HK, JE)
		< RESISTOR >	
R1	1-249-401-11	CARBON 47 5% 1/4W	
R2	1-216-037-00	METAL CHIP 330 5% 1/10W	
R3	1-216-037-00	METAL CHIP 330 5% 1/10W	
R5	1-216-037-00	METAL CHIP 330 5% 1/10W	
R6	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R7	1-216-037-00	METAL CHIP 330 5% 1/10W	
R8	1-216-037-00	METAL CHIP 330 5% 1/10W	
R9	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R10	1-216-037-00	METAL CHIP 330 5% 1/10W	
R11	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R12	1-216-037-00	METAL CHIP 330 5% 1/10W	
R13	1-216-037-00	METAL CHIP 330 5% 1/10W	
R14	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R18	1-216-073-00	METAL CHIP 10K 5% 1/10W	

TCB THERMO TRANSFORMER

Ref. No.	Part No.	Description				Remark
						(AEP, UK)
R18	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
						(EA, MY, SP, HK, JE)
R19	1-216-073-00	METAL CHIP	10K	5%	1/10W	
						(AEP, UK, EA, MY, SP, HK, JE)
R20	1-216-121-00	METAL CHIP	1M	5%	1/10W	
						(EA, MY, SP, HK, JE)
R21	1-216-049-00	METAL CHIP	1.0K	5%	1/10W	
R22	1-216-049-00	METAL CHIP	1.0K	5%	1/10W	
R23	1-216-049-00	METAL CHIP	1.0K	5%	1/10W	
R24	1-216-025-00	METAL CHIP	100	5%	1/10W	
R25	1-249-417-11	CARBON	1K	5%	1/4W	
R26	1-249-437-11	CARBON	47K	5%	1/4W	
R27	1-249-429-11	CARBON	10K	5%	1/4W	
R28	1-249-417-11	CARBON1K	5%	1/4W		
R29	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R30	1-216-186-00	METAL CHIP	330	5%	1/8W	
R31	1-216-025-00	METAL CHIP	100	5%	1/10W	
R32	1-249-425-11	CARBON	4.7K	5%	1/4W	
R33	1-249-425-11	CARBON	4.7K	5%	1/4W	
R34	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R35	1-216-214-00	METAL CHIP	4.7K	5%	1/8W	
R36	1-216-025-00	METAL CHIP	100	5%	1/10W	
R37	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R38	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R39	1-249-429-11	CARBON	10K	5%	1/4W	
R42	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R43	1-216-042-00	METAL CHIP	510	5%	1/10W	
R44	1-216-021-00	METAL CHIP	68	5%	1/10W	
R45	1-247-843-11	CARBON	3.3K	5%	1/4W	
R46	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R47	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R48	1-249-417-11	CARBON	1K	5%	1/4W	
R49	1-216-049-00	METAL CHIP	1.0K	5%	1/10W	
R50	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R51	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R53	1-249-429-11	CARBON	10K	5%	1/4W	
R54	1-249-399-11	CARBON	33	5%	1/4W	
						(AEP, UK, EA, MY, SP, HK, JE)
R55	1-216-162-00	METAL CHIP	33	5%	1/8W	
R56	1-249-393-11	CARBON	10	5%	1/4W	
R91	1-216-295-00	CONDUCTOR, CHIP			(2012)	(AEP, UK)
R91	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
						(EA, MY, SP, HK, JE)
R92	1-216-073-00	METAL CHIP	10K	5%	1/10W	
						(AEP, UK, EA, MY, SP, HK, JE)
R93	1-216-073-00	METAL CHIP	10K	5%	1/10W	
						(EA, MY, SP, HK, JE)
R94	1-216-073-00	METAL CHIP	10K	5%	1/10W	

Ref. No.	Part No.	Description	Remark
			(AEP, UK, EA, MY, SP, HK, JE)
		< VARIABLE RESISTOR >	
RV41	1-238-601-11	RES,ADJ,CARBON 22K	
RV42	1-238-600-11	RES,ADJ,CARBON 10K	
		< COIL >	
T1	1-409-505-11	COIL(ANT.SW3) (EA, MY, SP, HK, JE)	
T2	1-402-960-11	COIL(OSC.SW3) (EA, MY, SP, HK, JE)	
		< TERMINAL >	
TM1	1-537-238-21	TERMINALBOARD(ANT) (ANTENNA)	
		(EXCEPT AEP, G, UK)	
TM1	1-537-488-11	TERMINALBOARD(ANT) (ANTENNA)	
		(AEP, G, UK)	
		< VIBRATOR >	
X21	1-760-549-11	VIBRATOR,CRYSTAL (4.5MHz)	
X41	1-760-220-11	FILTER,CERAMIC (10.7MHz)	
X42	1-527-981-00	FILTER,CERAMIC (450KHz)	
X43	1-577-075-11	OSCILLATOR,CERAMIC (456KHz)	
**********			
*	1-663-500-11	THERMO BOARD	
		**********	
		< CAPACITOR >	
C988	1-164-159-11	CERAMIC 0.1uF 50V	
		< CONNECTOR >	
CN905	1-506-468-11	PIN, CONNECTOR 3P	
		< IC >	
IC982	8-759-947-34	IC LM35DZ	
**********			
*	1-662-206-11	TRANSFORMER BOARD	
		**********	
	1-533-293-11	FUSE HOLDER	
		< CAPACITOR >	
C991	1-164-159-11	CERAMIC 0.1uF 50V	
			(AEP, G, UK)
		< CONNECTOR >	
CN951	1-564-321-00	PIN, CONNECTOR 2P	
		< FUSE >	

TRANSFORMER

Ref. No.	Part No.	Description	Remark
⚠F953	1-532-465-51	FUSE, TIME LAG (3.15A/250V)	
⚠F954	1-532-465-51	FUSE, TIME LAG (3.15A/250V)	
⚠F955	1-532-464-51	FUSE (2.5A/250V)	
⚠F956	1-532-464-51	FUSE (2.5A/250V)	
		< SWITCH >	
⚠S951	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (MY, SP, EA, HK, JE)	
		< TRANSFORMER >	
⚠T901	1-429-786-11	TRANSFORMER, POWER (AEP, G, UK)	
⚠T901	1-429-787-11	TRANSFORMER, POWER (MY, SP, EA, HK, JE)	
**********			
		MISCELLANEOUS	
		**********	
16	1-776-063-11	WIRE (FLAT TYPE) (22 CORE)	
22	1-777-473-11	WIRE (FLAT TYPE) (19 CORE)	
52	1-777-471-11	WIRE (FLAT TYPE) (18 CORE)	
53	1-777-470-11	WIRE (FLAT TYPE) (30 CORE)	
54	1-777-475-11	WIRE (FLAT TYPE) (23 CORE)	
57	1-233-546-21	ENCAPSULATED COMPONENT, FM/AM TUNER (EA, HK, SP, MY)	
65	1-777-474-11	WIRE (FLAT TYPE) (21 CORE)	
67	1-777-472-11	WIRE (FLAT TYPE) (19 CORE)	
⚠68	1-569-007-11	ADAPTOR, CONVERSION 2P (JE)	
⚠69	1-569-008-11	ADAPTOR, CONVERSION 2P (EA, SP, MY)	
⚠70	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
⚠153	8-583-009-11	OPTICAL PICK-UP (MD) KMS-210A/J-N	
255	1-776-042-11	WIRE (FLAT TYPE) (8 CORE)	
* 262	1-452-879-11	MAGNET	
⚠305	8-848-367-11	OPTICAL PICK-UP (CD) KSS-213B/K-N	
306	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
⚠CNP801	1-574-805-11	CORD, POWER (AEP, G, EA, HK, SP, MY)	
⚠CNP801	1-575-653-11	CORD, POWER (JE)	
⚠CNP801	1-696-570-21	CORD, POWER (UK)	
HR901	1-500-304-21	HEAD, OVER LIGHT	
M101	A-4660-651-A	MOTOR (SLED) ASSY (MD)	
M101	X-4917-523-4	BASE (OUTSART) ASSY (SPINDLE) (CD)	
M102	A-4660-650-A	CHASSIS ASSY, BU (SPINDLE) (MD)	
M102	X-4917-504-1	MOTOR ASSY (SLED) (CD)	
M1701	A-4660-586-A	MOTOR ASSY (TURN)	
M1801	A-4660-926-A	MOTOR (CDM) ASSY	
M191	A-4660-646-A	MOTOR (LOADING) ASSY	
M901	1-698-861-11	MOTOR, DC FAN	
S102	1-762-148-11	SWITCH, PUSH (2 KEY)	
S851	1-473-335-11	ENCODER, ROTARY	
⚠T901	1-429-786-11	TRANSFORMER, POWER (AEP, UK, G)	

Ref. No.	Part No.	Description	Remark
⚠T901	1-429-787-11	TRANSFORMER, POWER (EA, HK, SP, MY, JE)	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-621-773-86	SCREW +BVTT 2.6X4 (S)	
#3	7-621-770-67	SCREW +PTT 2.6X6 (S)	
#4	7-621-775-20	SCREW +B 2.6X5	
#5	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
#6	7-685-645-79	SCREW +BVTP 3X6 TYPE2 N-S	
#7	7-627-852-08	SCREW,PRECISION +P 1.7X2.5	
#8	7-685-105-19	TPG +P 2X8, TYPE 2, NON-SLIT	
#9	7-621-775-10	SCREW +B 2.6X4	
#10	7-621-255-15	SCREW +P 2X3	
#11	7-685-649-79	SCREW +BVTP 3X14 TYPE2 N-S	
#12	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
#13	7-685-871-01	SCREW +BVTT 3X6 (S)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-473-840-11	REMOTE COMMANDER (RM-S5MD)	
	1-501-374-11	ANTENNA, LOOP	
	1-501-659-41	ANTENNA (FM) (EA, HK, SP, MY, JE)	
	1-501-804-11	ANTENNA (FM) (AEP, UK, G)	
	3-858-047-11	MANUAL, INSTRUCTION (ENGLISH) (AEP, UK)	
	3-858-047-21	MANUAL, INSTRUCTION (FRENCH, SPANISH, PORTUGUESE) (AEP)	
	3-858-047-31	MANUAL, INSTRUCTION (GERMAN) (AEP, G)	
	3-858-047-41	MANUAL, INSTRUCTION (DUTCH, ITALIAN) (AEP)	
	3-858-047-51	MANUAL, INSTRUCTION (DENMARK, FINNISH, SWEDISH) (AEP)	
	3-858-048-11	MANUAL, INSTRUCTION (ENGLISH) (EA, HK, SP, MY, JE)	
	3-858-048-21	MANUAL, INSTRUCTION (FRENCH, SPANISH) (EA, SP, MY)	
	3-858-048-31	MANUAL, INSTRUCTION (CHINESE) (EA, HK, SP, MY, JE)	
	3-858-048-41	MANUAL, INSTRUCTION (ARABIC) (EA)	
	3-858-048-51	MANUAL, INSTRUCTION (KOREAN, PORTUGUESE) (JE)	
	4-981-643-01	COVER, BATTERY (for RM-S5MD)	
*	4-985-266-01	CUSHION (DD5) (FRONT)	
*	4-985-267-01	CUSHION (DD5) (REAR)	
*	4-985-269-01	INDIVIDUAL CARTON (AEP, UK, G)	
*	4-985-270-01	INDIVIDUAL CARTON (EA, HK, SP, MY)	
*	4-985-270-11	INDIVIDUAL CARTON (JE)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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Sony Corporation
Home A&V Products Company

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HCD-MD5

SONY

SERVICE MANUAL

AEP Model
UK Model
E Model
Tourist Model

SUPPLEMENT-1

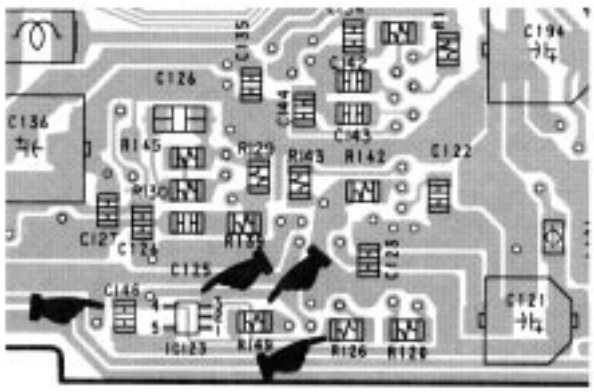
File this supplement with the service manual.

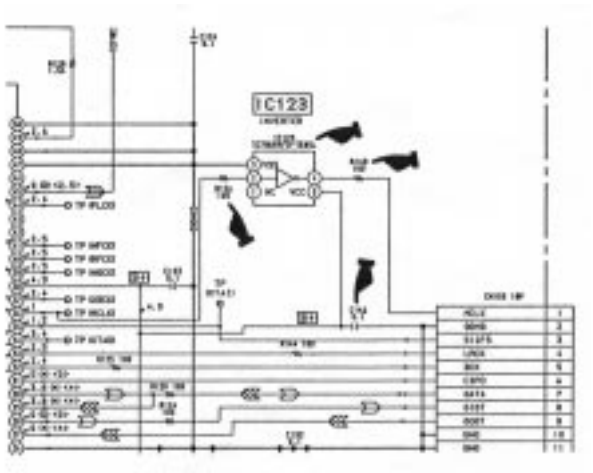
Subject: Addition of IC123

(SFD-00002)

☛: **Addition portion**

Page 57	**Location: G-3, 4**	**Page 65, 66**	**Location: F-19–I-25**





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